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THE FRESH-WATER FISHES OF LIBERIA

By Leonard P. Schultz

INTRODUCTION

This report on the fresh-water fishes of Liberia is based mostly on the excellent collection made by Dr. William M. Mann, director of the National Zoological Park, Washington, D. C., while he was directing the Smithsonian-Firestone Expedition to Liberia in 1940.[1] This collection was supplemented by others in the United States National Museum and by a small collection lent by the Museum of Comparative Zoology,[2] through the courtesy of Dr. Thomas Barbour and W. C. Schroeder.

One new cyprinid genus, *Mannichthys*, six new species, and one new subspecies are described, as follows:

Characinidae:
Nannocharax seyboldi
Cyprinidae:
Barilius silex
Mannichthys lucileae
Barbus flomoi
Barbus boboi
Siluridae:
Paramphilius firestonei
Cyprinodontidae:
Micropanchax macrurus manni

Although Dr. Mann was in Liberia for the purpose of obtaining animals for the National Zoological Park at Washington, D. C., he found time to collect over 2,400 specimens of fishes from three river systems. This collection of fresh-water fishes is one of the best ever

[1] Mann, W. M. and Mann, L. Q., Collecting live animals in Liberia. Explor. Field-Work Smithsonian Inst. 1940, pp. 13–20, 10 figs., 1941.

[2] Most of these fishes were collected by Dr. Glover M. Allen while he was with the Harvard African Expedition, 1926–1927, reported upon in "The African Republic of Liberia and the Belgian Congo," edited by Richard P. Strong, vols. 1 and 2, 1064 pp., Harvard University Press, 1930.

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made in Liberia. In addition to 15 species never before recorded in the Liberian fauna, 72 new distribution records for that country were obtained.

Dr. Mann's collection at Bendaja, in the Mano River drainage, represents the first fishes to be reported upon from that stream. He took 22 species, none of them new.

In the St. Pauls River system Dr. Mann collected fishes at Bromley and at Bellyella. The latter locality, near the Tuma River, is far up the St. Pauls River system, and there 13 species were obtained. One was a new species found nowhere else; another was a new species found also at Bromley. Two others were new records for the St. Pauls River system but were collected also at Bromley. At Bromley 28 species were collected, 15 of which have not been reported previously from the St. Pauls River, and 5 of these were new. One of these was taken also at Bellyella.

In the Du and Borlor River systems, 37 species were taken, 20 of which have not previously been recorded from the Du-Borlor-Farmington River system. Among these, 1 was a new species found nowhere else and 3 others were new species but found also in St. Pauls River.

Dr. Mann collected fishes in three river systems, taking altogether 47 species; 18 other species have been reported upon in the literature; and 3 others not previously recorded from Liberia are listed in this report, based on specimens either in the United States National Museum or the Museum of Comparative Zoology. Thus, the known strictly fresh-water fish fauna of Liberia totals 68 species.

A number of fishes have been reported from the brackish waters of Liberia: *Mugil cephalus* by Steindachner,[3] from the mouth of Messurado River (one of the mouths of St. Pauls River at Monrovia); *Mugil falcipinnis* by Steindachner,[4] from "Fischermann See" and "Messurado R."; Boulenger[5] records it from Nanna Kru.

Steindachner[6] records *Gerres melanopterus* from St. Pauls River and Cape Mount River, and Hubrecht[7] records it from the mouth of the Messurado River in brackish water.

Fowler[8] reports *Ophichthus rufus* (Rafinesque) from Mount Coffee (St. Pauls River). This eel probably migrated from the sea (U. S. N. M. No. 48488).

Steindachner[9] reported *Belone senegalensis* and *Hemirhamphus schlegelii*[10] from Fischermann See at Buluma.

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[3] Notes Leyden Mus., vol. 16, p. 33, 1894.
[4] Ibid., p. 35.
[5] Cat. fresh-water fishes Africa, vol. 4, p. 89, 1916.
[6] Notes Leyden Mus., vol. 16, p. 12, 1894.
[7] Notes Leyden Mus., vol. 3, p. 71, 1881.
[8] Proc. U. S. Nat. Mus., vol. 56, p. 241, 1919.
[9] Notes Leyden Mus., vol. 16, p. 73, 1894.
[10] Ibid., p. 74.

Psettus sebae has been reported from the mouth of the Messurado River by Hubrecht [11] and by Steindachner.[12] Fowler [13] records one from Monrovia and Boulenger [14] one from Nanna Kru.

Steindachner reported *Cynoglossus senegalensis* [15] and *Caranx carangus* [16] from the mouth of the Messurado River.

Pristipoma jubelini was reported from the mouth of the Messurado River by Hubrecht [17] and by Boulenger [18] from Nanna Kru.

Pellegrin [19] described a new blind eel, *Typhlosynbranchus boueti*, from near Monrovia.

Dr. Mann's collecting localities can be identified by reference to the information set forth in the following paragraphs, and to the map, figure 37. The distances indicated below were based on a 1938 map of Liberia prepared and printed by the Institute of Geographical Exploration, Harvard University.[20]

Bendaja, Liberia, is situated about 25 miles inland near the Mano, or Gbea, River. Collections made May 14 to 27, 1940.

Bellyella, Liberia, is in the St. Pauls River drainage, about 100 miles inland from Monrovia; March 23 to 30, 1940.

Bromley is but a few miles above the mouth of St. Pauls River; June 6 to 8, 1940.

Gibi Mountain is between the Farmington River and the Borlor River, about 35 or 40 miles from the mouth of the latter. The fish were taken at about 900 feet elevation; April 10 to 16, 1940.

Harbel, Liberia, is the name of the Firestone Plantation in the district between the lower part of the Du River (= Du Queah-Junk River) and the Borlor-Farmington Rivers; March 10 to July 17, 1940.

Family POLYPTERIDAE

KEY TO THE SPECIES OF POLYPTERUS FROM LIBERIA

1*a*. Scales in front of first dorsal spine 23 to 29 (26 to 29 in my specimens); dorsal V–IX, 16 to 18; anal 12 to 15; scales 52 to 57; 33 to 40 around middle of body (33 to 36 in my specimens); no black spot on base of pectorals, as described by Boulenger ..... Polypterus palmas Ayres

1*b*. Scales in front of first dorsal spine 30 to 33; dorsal VI to IX, 18; anal 12 or 13; scales 55 to 60; 36 to 38 around middle of body; no black spot on base of pectorals. (This species may be the same as *palmas*.) **Polypterus lowei Boulenger**

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[11] Notes Leyden Mus., vol. 3, p. 71, 1881.
[12] Ibid., vol. 16, p. 19, 1894.
[13] Proc. U. S. Nat. Mus., vol. 56, p. 248, 1919.
[14] Cat. fresh-water fishes Africa, vol. 3, p. 124, 1915.
[15] Notes Leyden Mus., vol. 16, p. 50, 1894.
[16] Ibid., p. 20.
[17] Notes Leyden Mus., vol. 3, p. 71, 1881.
[18] Cat. fresh-water fishes Africa, vol. 3, p. 126, 1915.
[19] Compt. Rend. Acad. Sci. Paris, vol. 174, pp. 884, 885, 1922.
[20] I am very grateful to the Geographical Institute of Harvard University for permission to trace the river systems on that map, and to insert the localities of Dr. Mann and others.

Genus POLYPTERUS Lacepède

Polypterus LACEPÈDE, Hist. Nat. Poiss., vol. 5, p. 340, 1803.

POLYPTERUS PALMAS Ayres

Polypterus palmas AYERS, Proc. Bost. Soc. Nat. Hist., vol. 3, p. 181, 1850.—STEINDACHNER, Notes Leyden Mus., vol. 16, p. 92, 1894 (Fischermann See; Junk and Sulymah Rivers; Buluma; Mahfa River).—BOULENGER, Cat. fresh-water fishes Africa, vol. 1, p. 16, 1909 (Liberia).—PELLEGRIN, Poiss. Afr. Occid., p. 37, 1923 (Liberia).

Polypterus büttikoferi STEINDACHNER, Notes Leyden Mus., vol. 13, p. 179, 1891 (Mahfa and Sulymah Rivers, Liberia).

The following specimens were collected by Dr. Wm. M. Mann:

U.S.N.M. No. 118747, 2 specimens, 125 and 132 mm., Bendaja.
U.S.N.M. No. 118748, 1 specimen, 213 mm., Gibi Mountain.

POLYPTERUS LOWEI Boulenger

Polypterus lowei BOULENGER, Ann. Mag. Nat. Hist., ser. 8, vol. 7, p. 377, 1911 (Nanna Kru, Liberia).—BOULENGER, Cat. fresh-water fishes Africa, vol. 4, p. 151, fig. 102, 1916 (Nanna Kru, Liberia).—PELLEGRIN, Poiss. Afr. Occid. p. 37, 1923 (Liberia).

This species may be the same as *P. palmas*, since my counts are intermediate between *palmas* and *lowei*.

Family CLUPEIDAE

I am not able to identify "*Clupea senegalensis* (sp. Benn. C. V.) Gthr" listed by Steindachner [21] with any fresh-water clupeids from Liberia.

Genus PELLONULA Günther

Pellonula GÜNTHER, Cat. Fish. British Mus., vol. 7, p. 452, 1868.

PELLONULA VORAX Günther

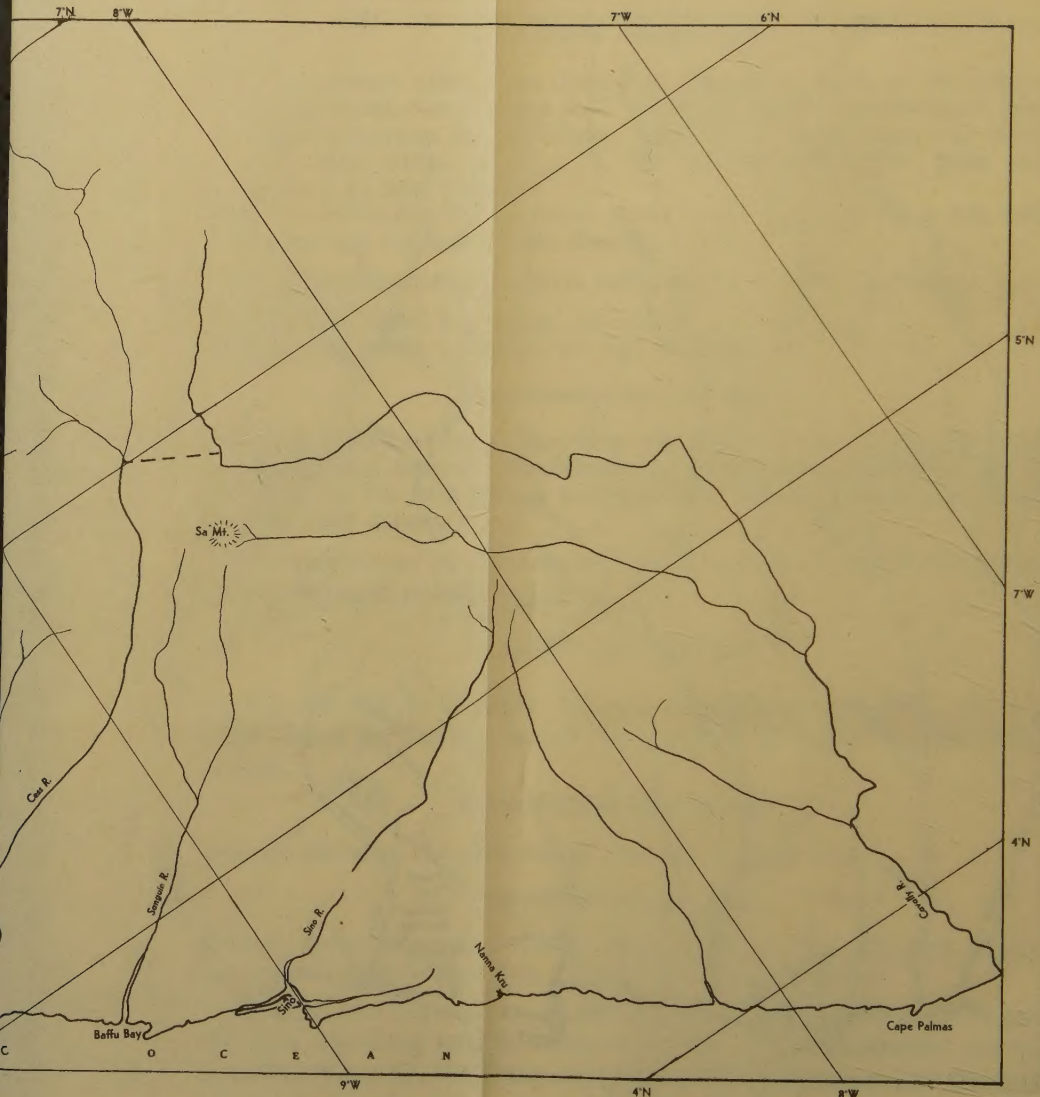
Pellonula vorax GÜNTHER, Cat. Fish. British Mus., vol. 7, p. 452, 1868.—STEINDACHNER, Notes Leyden Mus., vol. 16, p. 83, 1894 (Robertsport).

Although the 2 specimens, U.S.N.M. No. 118733, measuring 67.2 and 91.5 mm. standard length, collected by Dr. Mann at Harbel, are referred to *P. vorax*, they may represent a new subspecies, but the lack of comparative material causes me to hesitate to describe them at this time. The chief distinction between *vorax* and these two specimens is the position of the anal, farther back, its origin ½ the length of anal base behind base of last dorsal ray.

I give the following detailed description of the above 2 specimens from Harbel. All measurements are expressed in hundredths of the standard length, 91.5 and 67.2 mm., respectively.

[21] Notes Leyden Mus., vol. 16, p. 81, 1894.

FIGURE 37.—LIBERIA. This map was modified from a map of Libe
University. Acknowledgment is made to the Geographical Institut



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a printed by the Institute of Geographical Exploration, Harvard
of Harvard University for permission to trace the river systems.

Diagnosis.—Length of head 25.2 and 25.2; greatest depth 27.6 and 30.8; length of snout 7.65 and 7.89; diameter of eye 8.96 and 8.93; postorbital length of head 9.40 and 9.38; least width of interorbital space 4.70 and 4.48; length from tip of snout to rear of maxillaries 11.7 and 10.9; least depth of caudal peduncle 10.1 and 9.98; distance from base of last anal fin ray to midbase of caudal fin (length of caudal peduncle) 12.2 and 11.9; distance from tip of lower jaw (when mouth is opened so lower jaw is in line with axis of body) to rear of head 28.1 and 28.0; length of supramaxillary bone 6.22 and 6.25; snout to origin of dorsal 50.9 and 51.5; snout to origin of anal 75.0 and 73.1; snout to insertion of pelvics 50.2 and 50.7; snout to insertion of pectoral 25.4 and 25.2; length of longest ray —, of dorsal — and 17.1; of anal — and 9.68; of pelvics 13.8 and 14.3; of pectoral — and 17.4; of caudal 25.9 and 26.8. Length of base of dorsal 14.5 and 15.0; length of base of anal 17.7 and 18.0.

The following counts were made: Scales 45 and 44; transverse row at origin of dorsal 12 and 12; predorsal scales 17 and 17; dorsal rays iii, 14 and iii, 13; anal iii, 18 and iii, 17; pectoral 14 and 14; pelvic 8 and 8; gill rakers 12+26 and 11+28; keeled scutes 13+10 and 12+10.

Body much compressed, its width about ⅓ its depth; abdomen sharp-edged; teeth on premaxillary in a single row, numbering 22, near lip, these teeth strong but none of them caninelike; teeth on dentary similar and in a single row, the posterior ones very small in a depression at side of lower jaw; maxillary with a broad expanded posterior part and a narrow shaft forward, the ventral border of the expanded part finely denticulate; supramaxillary with a narrow shaft forward; a single row of fine teeth along middle of tongue; a few teeth on the palatines; gill rakers long and slender; when the lower jaw is closed it projects a very little in front of snout but not beyond the forward-projecting teeth; when lower jaw is open it projects considerably in front of snout; origin of dorsal a very little closer to tip of snout than base of caudal fin and over base of pelvics; origin of anal fin ½ length of base of anal fin behind rear base of dorsal; length of head shorter than greatest depth of body by ¾ diameter of eye; caudal peduncle a little deeper than long; keeled scales on belly from isthmus to anal fin origin.

Color.—A silvery lateral band, pigmented posteriorly and more or less continuing as blackish pigment in each lobe of the caudal fin; tip of snout and tip of lower jaw blackish.

Listed here are 2 small clupeid fishes in a very poor state of preservation, from Bromley, U. S. N. M. No. 118732, 21 and 28 mm. standard length, taken by Dr. Mann. These specimens appear to be close to the genus *Pellonula.*

Family NOTOPTERIDAE

KEY TO THE GENERA AND SPECIES OF NOTOPTERIDS FROM LIBERIA

1*a*. Dorsal fin present; body blackish to brownish with pale roundish markings posteriorly ..... Notopterus afer Günther

1*b*. No dorsal fin; uniform brownish or with fine darker lengthwise streaks. Xenomystus nigri Günther

Genus NOTOPTERUS Lacepède

Notopterus LACEPÈDE, Hist. Nat. Poiss., vol. 2, p. 189, 1800. (Type: *Gymnotus kapirat* Bonn.)

NOTOPTERUS AFER Günther

Notopterus afer GÜNTHER, Cat. Fishes Brit. Mus., vol. 7, p. 480, 1868.—HUBRECHT, Notes Leyden Mus., vol. 3, p. 71, 1881 (St. Pauls River).—STEINDACHNER, Notes Leyden Mus., vol. 16, p. 83, 1894 (Fischermann See; St. Pauls River; mouth Junk R.).—BOULENGER, Cat. fresh-water fishes Africa, vol. 4, p. 170, 1916 (Nanna Kru, Liberia).—FOWLER, Proc. U. S. Nat. Mus. vol. 56, p. 232, 1919 (St. Pauls River, near Monrovia).—NICHOLS and LAMONTE, Amer. Mus. Nov. No. 515, p. 1, 1932 (Nanna Kru, Liberia).

The following are in the collection of the United States National Museum:

U.S.N.M. No. 48499, 1 specimen, 145 mm. standard length, St. Pauls River at Mt. Coffee, February 20, 1897, Rolla P. Currie.

U.S.N.M. No. 118768, 2 specimens, 225 and 232 mm., Bromley, W. M. Mann.

U.S.N.M. No. 118769, 15 specimens, 51 to 338 mm., Bendaja, W. M. Mann.

U.S.N.M. No. 118770, 43 specimens, 48 to 378 mm., Harbel, W. M. Mann.

Genus XENOMYSTUS Günther

Xenomystus GÜNTHER, Cat. fishes Brit. Mus., vol. 7, 479, 1868.

XENOMYSTUS NIGRI Günther

Xenomystus nigri GÜNTHER, Cat. fishes Brit. Mus., vol. 7, p. 481, 1868.—BOULENGER, Cat. fresh-water fishes Africa, vol. 1, p. 148, 1909 (Liberia).—PELLEGRIN, Poiss. eaux douces Afr. Occid., p. 78, 1923 (Liberia).

Notopterus (*Xenomystus*) *nigri* STEINDACHNER, Notes Leyden Mus., vol. 16, p. 85, 1894 (Fischermann See).

Family ANGUILLIDAE

Genus SPHAGEBRANCHUS Bloch

Sphagebranchus BLOCH, Naturg. ausländ. Fische, vol. 9, p. 88, 1795.

SPHAGEBRANCHUS CEPHALOPELTIS Bleeker

Sphagebranchus cephalopeltis BLEEKER, Nat. Verh. Vet. Haarlem, vol. 18, p. 128, 1863.

Ophichthys (*Sphagebranchus*) *büttikoferi* STEINDACHNER, Notes Leyden Mus., vol. 16, p. 88, 1894 ([Du River] at Hill Town).

Family MORMYRIDAE

KEY TO THE GENERA AND SPECIES OF MORMYRIDS REPORTED FROM LIBERIA

1*a*. Length of base of anal fin contained 2¾ times in length of base of dorsal fin; depth 4 to 4½; head 3⅔; dorsal 58 to 61; anal 21 to 24; pectoral 14 or 15; scales in lateral line about 80, but about 100 to 115 rows crossing body above the laterial line from gill opening to base of caudal fin; 11 or 12 scales around caudal peduncle; snout and mouth rounded, a little elongate and slightly curved downward; eye 3 in snout; snout 2⅙ in head; least depth of caudal peduncle 4½ in its length (base of anal to midbase of caudal fin); length of caudal peduncle 1⅛ in head.

Mormyrus goheeni Fowler

1*b*. Base of anal fin longer, contained fewer than 2 times in length of base of dorsal fin.

2*a*. Teeth, 10 or more in both jaws and arranged in a single row.

3*a*. Mouth terminal, but a little inferior; dorsal fin base contained 1⅗ to 1⅘ in base of anal fin; posterior nostril about 1 eye diameter in front of eye; dorsal rays 21 to 27; anal 40 to 50; scales about 80 to 90; teeth about 17 to 23 above and 16 to 18 on lower jaw.

4*a*. Depth 6½ to 7 times in standard length; head 4½; the greatest depth is contained 2⁹⁄₁₀ times in distance from anus to base of caudal fin; and 1⅘ times in distance from insertion of pelvics to origin of anal fin_____ Mormyrops breviceps Steindachner

4*b*. Depth 5½; head 3¾; depth 2⅖ times in distance from anus to base of caudal fin; depth is equal to the distance from pelvic insertion to anal origin_____ Mormyrops deliciosus (Leach)

3*b*. Mouth inferior; the snout rounded and extending in front of upper lip; base of dorsal fin contained 1¼ to 1⅓ times in base of anal fin; both nostrils close together and very close to front margin of eye; dorsal rays 24 to 28; anal 30 to 34; pectoral 9; depth about 3 in standard length; teeth 12 to 14 on upper jaw and 21 to 24 on lower jaw; 11 or 12 scales around caudal peduncle; 37 or 38 scales in lateral line but 54 or 55 rows crossing body above lateral line from gill opening to base of caudal fin (anterior ⅔ of base of anal fin on males concave and somewhat swollen_____ Petrocephalus simus (Sauvage)

2*b*. Teeth fewer than 10 in both jaws and uniserial; posterior nostril an eye's diameter in front of eye.

5*a*. Depth 8 to 11 times in standard length; mouth somewhat inferior; base of dorsal fin a little longer than anal fin base, the latter contained about 1.1 to 1.2 times in dorsal fin base; dorsal rays usually 40 to 45; anal 40 to 44; pectoral 9; scales usually 130 to 135; teeth 5 or 6 in upper jaw and 6 in lower jaw; eye small, contained about 10 times in head.

Isichthys henryi Gill

5*b*. Greatest depth 3 to 6 times in standard length; mouth terminal or subinferior; base of dorsal fin shorter than anal fin base.

6*a*. Mouth a little inferior (subinferior) in position and below level of eye; dorsal fin base contained 1½ times in anal fin base; depth 4⅓ to 6 times in standard length, and head 4½ to 6⅓ times; dorsal rays 15 to 18; anal usually 26 to 28; pectoral 9; scales about 57 to 60; 12 scales around caudal peduncle; pelvic fins a little closer to pectoral base than anal origin_____Marcusenius brachyistius Gill

6*b*. Mouth terminal, the chin a little enlarged; depth 3⅛ to 4½ times in standard length, and head 4½ to 5 times; base of dorsal fin contained 1¼ to 1⅓ in base of anal fin.

7*a*. Dorsal rays 29 to 33; anal about 36; scales about 84 or 85; 12 scales around caudal peduncle (after Boulenger).

Gnathonemus mento (Boulenger)

7*b*. Dorsal rays 27 or 28; anal 30 to 32; scales about 55 to 57; 12 scales around caudal peduncle (after Boulenger).

Gnathonemus ussheri (Günther)

Genus MORMYRUS Linnaeus

Mormyrus LINNAEUS, Systema naturae, ed. 10, p. 327, 1758. (Type: *Mormyrus cyprinoides* Linnaeus.)

MORMYRUS GOHEENI Fowler

Mormyrus goheeni FOWLER, Proc. U. S. Nat. Mus., vol. 56, p. 234, fig. 7, 1919 (type and 4 paratypes from St. Pauls River, Liberia).

The following specimens, from St. Pauls River, were collected by Rolla P. Currie:

U.S.N.M. No. 48517 (holotype).
U.S.N.M. Nos. 48514–48516, and 48518 (paratypes).

Genus MORMYROPS Müller

Mormyrops MÜLLER, *in* Wiegmann's Arch. Naturg., p. 324, 1843. (Type: *Mormyrus anguilloides* G. St. Hilaire.)

MORMYROPS BREVICEPS Steindachner

Mormyrops breviceps STEINDACHNER, Notes Leyden Mus., vol. 16, p. 66, 1894 (St. Pauls River.)—BOULENGER, Cat. fresh-water fishes Africa, vol. 1, p. 36, 1909 (St. Pauls River).—PELLEGRIN, Poiss. eaux douces Afr. Occid., p. 48, 1923 (Liberia).

U.S.N.M. No. 118805 contains 2 specimens, 159 and 195 mm., collected by Dr. Mann at Harbel.

The following data from above-listed specimens: Dorsal rays 25 and 26; anal 41; pectoral 10; scales 88 and 89; 16 scales around caudal peduncle; teeth $\frac{19}{16}$; $\frac{17}{16}$; origin of dorsal over twelfth ray of anal.

MORMYROPS DELICIOSUS (Leach)

Oxyrhynchus deliciosus LEACH, in Tuckey, Exped. R. Zaire, p. 410, 1818.
Mormyrops deliciosus HUBRECHT, Notes Leyden Mus., vol. 3, p. 170, 1881 (St. Pauls River).—STEINDACHNER, Notes Leyden Mus., vol. 16, p. 65, 1894 (St. Pauls River).—BOULENGER, Cat. fresh-water fishes Africa, vol. 1, p. 32, 1909 (West Africa).—FOWLER, Proc. U. S. Nat. Mus., vol. 56, p. 234, 1919 (St. Pauls River).

U.S.N.M. No. 48500 contains 1 specimen, 142 mm. standard length, from St. Pauls River at Mt. Coffee, collected by Rolla P. Currie. It

has the following data: Dorsal rays 26; anal 44; pectoral 10; scales 80; teeth $\frac{21}{18}$.

Genus PETROCEPHALUS Marcusen

Petrocephalus Marcusen, Bull. Acad. Sci. St. Petersburg, vol. 12, p. 10, 1854. (Type: *Mormyrus bane* Valenciennes.)

PETROCEPHALUS SIMUS (Sauvage)

Mormyrus (*Petrocephalus*) *simus* Sauvage, Bull. Soc. Philom., vol. 3, p. 100, 1878.

Petrocephalus simus Boulenger, Cat. Fresh-water fishes Africa, vol. 1, p. 54, 1909 (Duqueah River, Liberia).—Pellegrin, Poiss. eaux douces Afr. Occid., p. 51, 1923 (Liberia).

Mormyrus tenuicauda Steindachner, Notes Leyden Mus., vol. 16, p. 69, 1894 (Duqueah and Junk Rivers).

The following specimens, collected by Dr. Mann, are in the National Museum collections:

U.S.N.M. No. 118801, 20 specimens, 70 to 118 mm., Bromley.
U.S.N.M. No. 118802, 2 specimens, 63 and 66 mm., Bendaja.
U.S.N.M. No. 118803, 4 specimens, 57 to 86 mm., Bellyella.
U.S.N.M. No. 118804, 18 specimens, 58 to 92 mm., Harbel.

Genus ISICHTHYS Gill

Isichthys Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 443. (Type: *Isichthys henryi* Gill.)

ISICHTHYS HENRYI Gill

Isichthys henryi Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 44 (Liberia).—Boulenger, Cat. fresh-water fishes Africa, vol. 1, p. 60, 1909 (Liberia)—Nichols and LaMonte, Amer. Mus. Nov. No. 626, p. 2, 1933 (Kaleata, Liberia).

Mormyrops henryi Hubrecht, Notes Leyden Mus., vol. 3, p. 70, 1881 (St. Pauls River).

Mormyrus henri Steindachner, Notes Leyden Mus., vol. 16, p. 66, 1894 (St. Pauls River and Duqueah River).

The United States National Museum collections contain the following specimens, all collected by Dr. Mann:

U.S.N.M. No. 118797, 19 specimens, 81 to 256 mm., Bromley.
U.S.N.M. No. 118799, 14 specimens, 85 to 265 mm., Bendaja.
U.S.N.M. No. 118800, 86 specimens, 70 to 257 mm., Gibi Mountain.
U.S.N.M. No. 118798, 38 specimens, 68 to 276 mm., Harbel.

Genus MARCUSENIUS Gill

Marcusenius Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 139. (Type: *Marcusenius brachyistius* Gill [not *M. cyprinoides* L. as designated in Jordan's Genera of fishes and not *M. anguilloides* L. as given by Gill, ibid., p. 444].)

MARCUSENIUS BRACHYISTIUS Gill

Marcusenius brachyistius GILL, Proc. Acad. Nat. Sci. Philadelphia, p. 139, 1862 (Liberia).

Marcusenius brachistius BOULENGER, Cat. fresh-water fishes Africa, vol. 1, p. 67, 1909 (Liberia); vol. 4, p. 158, 1916 (Nanna Kru, Liberia).—NICHOLS and LAMONTE, Amer. Mus. Nov. No. 626, p. 2, 1933 (Kaleata, Liberia).

Mormyrus liberiensis STEINDACHNER, Notes Leyden Mus. vol. 16, p. 67, 1894 (Sulymah and Junk Rivers; Fischermann See).

The following specimens are in the National Museum collections:

U.S.N.M. No. 4098 (type of *Marcusenius brachyistius* Gill), Liberia.
U.S.N.M. No. 118782, 13 specimens, 56 to 113 mm., Bromley, W. M. Mann.
U.S.N.M. No. 118783, 30 specimens, 48 to 135 mm., Bendaja, W. M. Mann.
U.S.N.M. No. 118784, 58 specimens, 42 to 135 mm., Harbel, W. M. Mann.
U.S.N.M. No. 118785, 17 specimens, 52 to 115 mm., Gibi Mountain, W. M. Mann.

Genus GNATHONEMUS Gill

Gnathonemus GILL, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 444. (Type: *Mormyrus petersi* Günther.)

GNATHONEMUS MENTO (Boulenger)

Mormyrus mento BOULENGER, Ann. Mag. Nat. Hist., ser. 6, vol. 6, p. 193, 1890.

Gnathonemus mento STEINDACHNER, Notes Leyden Mus., vol. 16, p. 72, 1894 (Sulymah River).—BOULENGER, Cat. fresh-water fishes Africa, vol. 1, p. 106, fig. 86, 1909 (Liberia)—PELLEGRIN, Poiss. eaux douces Afr. Occid., p. 63, 1923 (Liberia).

GNATHONEMUS USSHERI (Günther)

Mormyrus ussheri GÜNTHER, Ann. Mag. Nat. Hist., ser. 3, vol. 20, p. 116, 1867—STEINDACHNER, Notes Leyden Mus., vol. 16, p. 71, 1894 (Duqueah River).

Gnathonemus ussheri BOULENGER, Cat. fresh-water fishes Africa, vol. 1, p. 116, fig. 95, 1909 (Liberia)—PELLEGRIN, Poiss. eaux douces Afr. Occid. p. 67, 1923 (Liberia).

Family MASTACEMBELIDAE

Genus MASTACEMBELUS Scopoli

Mastacembelus SCOPOLI, Introduc. hist. nat. Prague, p. 458, 1777.

MASTACEMBELUS LIBERIENSIS Boulenger

Mastacembelus marchei (not Sauvage) STEINDACHNER, Notes Leyden Mus., vol. 16, p. 31, 1894 (Fischermann See, Liberia).

Mastacembelus liberiensis BOULENGER, Trans. Zool. Soc., vol. 15, p. 23, 1898 (Liberia).

The specimens before me do not agree exactly with Boulenger's or Steindachner's descriptions so I am adding the following supplemental observations: Margin of dorsal, caudal, and anal pale, color pattern reticulated, the pale circular areas small anteriorly and most distinct ventrally on sides, the belly being pale, the pale circular areas large posteriorly so only two rows occur on tail region, these extended

on median fins; anteriorly the back is paler, somewhat set off by a blackish wavy line most distinct on head; base of pectoral blackish, sometimes with one or two more blackish bars distally; depth about 13 or 14 in length; 20 or 21 scales between origin of soft dorsal and lateral line; a moderately strong, slender preorbital spine and 2 or 3 preopercular spines (usually 2); the anus is located progressively farther forward with increase in size as indicated from following measurements: The anus is midway from—tip of tail to back of eyes (70 mm. specimen), tip of tail to middle of eye (on 99 and 130 mm. specimens), tip of tail to front of eye (175 mm.), tip of tail to middle of snout (219 mm.), tip of tail to tip of lower jaw (267 mm.); and tip of tail to tip of projecting fleshy snout (360 mm.). (Table 1.)

Dr. Mann collected specimens as follows:

U.S.N.M. No. 118749, 2 specimens, 267 to 277 mm., Gibi Mountain.
U.S.N.M. No. 118750, 3 specimens, 70 to 300 mm., Harbel.
U.S.N.M. No. 118751, 6 specimens, 99 to 219 mm., Bendaja.
U.S.N.M. No. 118752, 24 specimens, 147 to 369 mm., Bromley.

TABLE 1.—*Counts were made on specimens* of M. liberiensis *from Liberia*

	Dorsal rays								
	Spines						Soft rays		
	XXVII	XXVIII	XXIX	XXX	XXXI	XXXII	84	85	86
Number of counts	1			3	9	1	2		1

	Anal rays				
	II, 82	II, 83	II, 84	II, 85	II, 86
Number of counts	1		1	1	1

Family CHARACINIDAE

KEY TO THE CHARACINS FROM LIBERIA

1*a*. Teeth, in outer row, slender, mostly bifid, set very close together near front of lips, and not at sides of mouth, the latter small.

2*a*. Lateral line complete; upper jaw freely movable; anus ½ head length in front of anal fin origin; gill membranes attached to isthmus; scales about 43 or 44, 4½ above and 4½ below lateral line; 8 or 9 scales from rear of adipose fin to base of caudal fin; 10 or 11 scales in front of dorsal; dorsal rays iii, 10; anal iii, 7; gill rakers about 3 + 6. Color.—10 or 11 narrow brownish saddles on back more or less joining brown blotches below, that form a wide but broken lateral band; dorsal with two dark cross bars and pelvics with one bar.

Nannocharax seyboldi, new species

2*b*. Lateral line incomplete with only a few pores anteriorly just behind head; upper jaw barely or only slightly movable; anus close to anal origin;

gill membranes mostly free from isthmus, joined far forward; scales ciliated, 32 to 36, 10 in a transverse series to pelvic base; 13 or 14 scales before dorsal fin; dorsal rays iii, 7 or 8; anal iii, 6 or 7; gill rakers about 10 on lower part of first arch; a black lateral band from snout to tips of caudal fin rays_____Neolebias unifasciatus Steindachner

1*b*. Teeth in outer row caninelike or short and bluntly conical; upper jaw not movable; lateral line complete; gill membranes free from isthmus.

3*a*. Scale rows more numerous than 40, crossing sides of body; outer row of teeth strong canines.

4*a*. Scales about 47, 7½ above lateral line and 2½ below it to pelvic fin base; 18 scales before dorsal; dorsal rays ii, 8; anal iii, 14; gill rakers 7 or 8 + 10. Color.—Lengthwise brown streaks along each row of scales on sides of body; adipose fin black.

Hydrocyon forskali Cuvier

4*b*. Scales about 61, 9½ above and 4½ below lateral line; about 42 scales in front of dorsal fin; dorsal rays ii, 7; anal iii, 9; gill rakers 5+1+ 10; adipose fin blackish; 3 black streaks and 2 white ones between them radiate backward from eye, another white streak below eye.

Hepsetus odo (Bloch)

3*b*. Scale rows crossing sides 20 to 33; outer row of teeth short, bluntly conical; dorsal rays ii or iii, 8.

5*a*. At tip of lower jaw occurs a pair of short conical caninelike teeth inside the outer row of multifid teeth.

6*a*. Anal rays iii, 18 to 20; scales 29 or 30, 5½ above and 2½ below lateral line; about 13 scales in front of dorsal fin; gill rakers 9 or 10 + 12 to 15; a large, oblong black blotch on caudal peduncle extending to tips of mid-rays of caudal fin. Depth 2½ (males) to 3½ in standard length; origin of dorsal from midway (seldom) to a little closer to tip of snout than base of caudal fin; least depth of caudal fin 2¼ to 2½ in head.

Alestes longipinnis (Günther)

6*b*. Anal rays 11 to 15; gill rakers 12 to 14 + 16 to 19.

7*a*. Anal rays iii, 14; scales 25 to 27; 5½ above and 1½ below the lateral line to base of pelvic fin; 9 scales before dorsal; a black blotch on caudal peduncle, not extending on caudal fin rays; a faint blotch behind head near midaxis; posterior margin of anal fin blackish; depth about 2¾ to 3 in standard length; origin of dorsal a trifle closer to tip of snout than of caudal fin; least depth of caudal peduncle 2⅕ in head_____Alestes nurse (Rüppell)

7*b*. Anal rays iii, 12 or 13; scales 23 to 26, 4½ above and 1½ below lateral line; 9 or 10 scales before dorsal fin; a black oblong blotch on caudal peduncle that extends to tips of midcaudal fin rays; a black blotch behind head; depth 3¾ in standard length; origin of dorsal fin nearly an eye diameter closer to base of caudal fin rays than tip of snout; least depth of caudal peduncle 2½ in head_____Alestes rutilus Boulenger

5*b*. At tip of lower jaw, no pair of conical teeth within the outer row of teeth; anal rays iii, 15 or 16; scales 24 to 26, 4½ above and 1½ below the lateral line; gill rakers about 6 + 13; a blackish lateral band narrow and obscure anteriorly but distinct and wider posteriorly, not extending on head nor on caudal fin; tip of dorsal black.

Petersius occidentalis (Günther)

Genus NANNOCHARAX Günther

Nannocharax GÜNTHER, Ann. Mag. Nat. Hist., ser. 3, vol. 20, p. 112, 1867. (Type: *Nannacharax fasciatus* Günther.)

NANNOCHARAX SEYBOLDI, new species

PLATE 35, FIGURE 1

Holotype.—U.S.N.M. No. 118757, 32.9 mm. in standard length (tip of snout to base of caudal fin rays), collected by Dr. Wm. M. Mann at Bellyella.

Paratypes.—1 specimen, U.S.N.M. No. 118759, collected by Dr. Mann at Bellyella; 3 paratypes, U.S.N.M. No. 118758, collected by Dr. Mann at Bromley.

Description.—Based on the holotype and 4 paratypes. Detailed measurements of 4 specimens are expressed in hundredths of the standard length, in table 2, for convenience in comparing these proportions with those for other species.

The long, slender teeth with bifid tips are set close together, numbering about 8 in the upper jaw and 10 in the lower. There are no teeth on the maxillary; the mouth is small and movable; the snout is somewhat pointed; interorbital space flat; eye large, about equal to length of snout; gill rakers short about 3+6; gill membranes attached to the isthmus a short distance forward; origin of dorsal a little behind pelvic insertion and a little closer to origin of adipose fin than to tip of snout; lateral line complete, extending along middle of side; pectoral fins long, and extending past pelvic insertion; pelvic fins reaching about halfway between anus and anal origin; caudal fin deeply forked; first branched ray of dorsal and anal fins longest; third ray of pelvic fin longest, the first two rays simple, and the next 7 branched, totaling 9 in that fin; the second pectoral ray longest, the first two rays of this fin simple.

There are 11 pale brown saddles on the back, 3 in front of dorsal fine, 2 under base of that fin, 4 between the dorsal and adipose fins, one under adipose and the last on caudal peduncle; the brownish saddles do not quite connect with 11 or 12 irregular brownish blotches along midsides that appear to be on the scales; under the scales and more deeply beneath the skin are 5 brown blotches along the midsides; pigment area at base of first few anal rays; paired fins pale; a brownish opercular spot; sides of snout with brown band and dorsal surface of snout brown; midbase of caudal fin brownish, and two other smaller pigment areas in each lobe of the caudal fin; two more or less distinct brownish bars across dorsal fin; ventrally the color is abruptly paler below the blotches along the sides.

Remarks.—This new species is closest to *N. intermedius* and may prove to be a subspecies of it when extensive collections have been made along the west coast of Africa. It differs from *intermedius* in

having 43 to 44 scale rows between head and base of caudal fin, 8 or 9 scales behind adipose fin, and 10 or 11 in front of the dorsal instead of 51 to 54; 13 or 14 and 12 or 13 respectively. The color patterns of *intermedius* and *seyboldi* are the same. *N. fasciatus* has a broader head and more robust body, with 12 or 13 scales behind the adipose fin and base of caudal instead of 8 or 9 as in *intermedius*. Possibly the specimen figured by Fowler [22] as *N. taenia* is closely related to this new species. (Table 2.)

TABLE 2.—*Certain counts and measurements*[1] *made on three species of* Nannocharax *from West Africa*

Character	*N. seyboldi*,[2] new species				*N. intermedius*[3]		*N. fasciatus*[4]
Standard length in millimeters	43.2	32.9	41.0	33.6	53.7	48.8	68.6
Length of head	24.3	26.7	26.8	25.6	23.8	22.7	22.9
Width of head	12.1	12.4	12.4	11.9	11.8	9.83	13.5
Length of snout	7.64	7.90	8.54	7.44	7.08	6.76	8.74
Greatest depth of body	17.4	21.0	18.8	19.3	18.8	17.0	23.3
Diameter of eye	7.40	8.51	7.80	8.93	6.70	6.35	5.83
Width of bony interorbital	4.86	5.48	5.12	5.36	4.28	4.51	5.68
Postorbital length of head	9.72	11.5	12.7	11.6	11.2	11.1	10.3
Distance from tip of snout to rear of maxillary	4.63	5.17	4.63	4.46	4.28	4.51	4.98
Length of caudal peduncle	16.9	18.2	17.8	19.3	18.2	19.1	16.8
Least depth of caudal peduncle	9.49	9.73	9.50	9.52	9.13	8.40	10.2
Distance from snout to:							
Origin of dorsal fin	44.9	45.3	45.4	43.2	44.0	41.0	43.0
Origin of adipose fin	82.2	84.2	84.9	86.0	80.0	77.2	80.2
Origin of anal fin	73.1	75.1	74.2	75.0	71.2	69.3	73.2
Insertion of pectoral fin	23.1	24.3	26.6	28.0	23.7	21.9	20.2
Insertion of pelvic fin	41.2	41.3	46.4	45.5	41.9	41.0	37.9
Middle of anus	66.2	62.6	64.8	64.9	60.6	58.6	60.6
Longest ray of:							
Dorsal fin	22.7	24.3	21.9	23.2	21.8	22.5	21.4
Anal fin	16.7	16.7	----------	16.4	14.3	15.2	16.9
Pectoral fin	22.0	24.0	21.2	19.3	19.6	17.2	23.3
Pelvic fin	28.9	25.5	24.4	23.5	23.3	23.2	29.3
Caudal fin	27.8	27.1	----------	----------	25.2	24.8	23.3
Pectoral rays	14	16	14	15	13	14	17
Dorsal rays	iii, 10	iii, 10	iii, 10	iii, 10	iii, 10	iii, 10	iii, 10
Anal rays	iii, 7	iii, 7	iii, 7	iii, 7	iii, 7	iii, 7	iii, 6
Number of scale rows	43	44	44	44	51	54	47
Scales above lateral line	4½	4½	4½	4	5½	5½	4½
Scales below lateral line	4½	4	4	4	5½	4½	4½
Scales in front of dorsal	10	11	11	11	13	12	10
Scales from adipose fin to base of caudal fin	9	8	8	8	13	14	13

[1] All measurements expressed in hundredths of the standard length.
[2] For locality data see description.
[3] From Cameroons, vicinity Lolodorf and Etat.
[4] From Cameroons.

It differs from other species of *Nannocharax* in the combination of fewer scales with the color pattern and a narrow head.

Named *seyboldi* after George Seybold, Firestone Plantation, Liberia, who extended much help to Dr. Mann.

[22] Proc. Acad. Nat. Sci. Philadelphia, 1936, p. 270, fig. 20.

Genus NEOLEBIAS Steindachner

Neolebias Steindachner, Notes Leyden Mus., vol. 16, p. 78, 1894. (Type: *Neolebias unifasciatus* Steindachner.)

NEOLEBIAS UNIFASCIATUS Steindachner

Neolebias unifasciatus Steindachner, Notes Leyden Mus., vol. 16, p. 78, 1894 (Robertsport, Liberia).—Boulenger, Cat. fresh-water fishes Africa, vol. 1, p. 256, fig. 195, 1909 (Robertsport, Liberia).

Genus HYDROCYON Cuvier

Hydrocyon Cuvier, Mém. Mus. Paris, vol. 5, p. 353, 1819. (Type: *H. forskali* Cuvier.)

HYDROCYON FORSKALI Cuvier

Hydrocyon forskali Cuvier, Mém. Mus. Paris, vol. 5, p. 354, pl. 28, 1819.—Hubrecht, Notes Leyden Mus., vol. 3, p. 70, 1881 (St. Pauls River).—Steindachner, Notes Leyden Mus., vol. 16, p. 62, 1894 (St. Pauls River).—Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 238, 1919 (St. Pauls River near Monrovia).

U.S.N.M. No. 48519 contains 1 specimen, 178 mm. standard length, from St. Pauls River near Monrovia.

Genus HEPSETUS Swainson

Hepsetus Swainson, Natural history and classification of fishes, amphibians and reptiles, vol. 1, p. 259–260, 1838. (Type: *Salmo odoë* Bloch, designated by Hubbs, 1939.)

Sarcodaces Günther, Cat. Fish. Brit. Mus. vol. 5, p. 353, 1864. (Type: *Salmo odoë* Bloch.)

HEPSETUS ODOË (Bloch)

Salmo odoë Bloch, Naturg. ausländ. Fische, vol. 8, p. 122, pl. 386, 1794.

Sarcodaces odoë Steindachner, Notes Leyden Mus., vol. 16, p. 63, 1894 (Fischermann See and Junk River, Liberia).

Dr. Mann collected the following specimens:

U.S.N.M. No. 118760, 2 specimens, 49 and 57 mm., Bromley.
U.S.N.M. No. 118761, 1 specimen, 179 mm., Harbel.

Genus ALESTES Müller and Troschel

Alestes Müller and Troschel, Synop. gen. spec. fam. Characinarum; Wiegmann's Archiv. Naturg., p. 88, 1844. (Type: *Salmo niloticus* Geoffroy St. Hilaire.)

ALESTES LONGIPINNIS (Günther)

Brachyalestes longipinnis Günther, Cat. Fishes, Brit. Mus., vol. 5. p. 315, 1864.—Hubrecht, Notes Leyden Mus., vol. 3, p. 70, 1881 (St. Pauls River, Liberia).

Alestes (*Brachyalestes*) *longipinnis* Steindachner, Notes Leyden Mus., vol. 16, p. 64, 1894 (St. Pauls River at Soforeh Place; Junk River, Liberia).

Alestes longipinnis FOWLER, Proc. U. S. Nat. Mus., vol. 56, p. 238, 1919 (St. Pauls River, near Monrovia).—NICHOLS and LAMONTE, Amer. Mus. Nov. No. 626, p. 2, 1933 (Kaleata, Liberia).

The following specimens are in the National Museum collections:

U.S.N.M. No. 48520, 2 specimens, St. Pauls River, Liberia, Rolla P. Currie.
U.S.N.M. No. 118762, 13 specimens, 53–85 mm., Bendaja, W. M. Mann.
U.S.N.M. No. 118763, 3 specimens, 29–36 mm., Bellyella, W. M. Mann.
U.S.N.M. No. 118764, 98 specimens, 50–93 mm., Harbel, W. M. Mann.
U.S.N.M. No. 118765, 74 specimens, 18–87 mm., Bromley, W. M. Mann.
U.S.N.M. No. 118766, 5 specimens, 55–76 mm., Gibi Mt., W. M. Mann.

ALESTES NURSE (Rüppell)

Myletes nurse RÜPPELL, Fortsetz Beschr. Fische Nil, p. 12, pl. 2, fig. 3, 1832.
Brachyalestes nurse HUBRECHT, Notes Leyden Mus., vol. 3, p. 70, 1881 (St. Pauls River, Liberia).

The collections of the National Museum contain the following specimens, taken by Dr. Mann:

U.S.N.M. No. 118753, 2 specimens, 66 and 95 mm., Harbel.
U.S.N.M. No. 118754, 1 specimen, 112 mm., Gibi Mt.

ALESTES RUTILUS Boulenger

Alestes rutilus BOULENGER, Catalog fresh-water fishes Africa, vol. 4, p. 181, fig. 116, 1916 (Sierra Leone).—FOWLER, Proc. U. S. Nat. Mus. vol. 56, p. 239, 1919 (St. Pauls River near Monrovia).
?*Alestes macrolepidotus* HUBRECHT, Notes Leyden Mus., vol. 3, p. 70, 1881 (St. Pauls River, Liberia).
Alestes (*Brycinus*) *macrolepidotus* STEINDACHNER, Notes Leyden Mus., vol. 16, p. 63, 1894 (St. Pauls River).

The United States National Museum has the following 2 specimens:

U.S.N.M. No. 48521, 1 specimen, St. Pauls River near Monrovia, R. P. Currie.
U.S.N.M. No. 118767, 1 specimen, 88 mm., Harbel, W. M. Mann.

Genus PETERSIUS Hilgendorf

Petersius HILGENDORF, Sitzber. Ges. Naturf. Berlin, 1894, p. 172. (Type: *P. conserialis* Hilgendorf.)

PETERSIUS OCCIDENTALIS (Günther)

Petersius occidentalis GÜNTHER, Proc. Zool. Soc. London, 1899, p. 731, pl. 45, fig. 8 (Gold Coast, Kotchwah River).

Dr. Mann collected specimens in two localities:

U.S.N.M. No. 118755, 50 specimens, 32-42 mm., Gibi Mt.
U.S.N.M. No. 118756, 53 specimens, 22-42 mm., Bromley.

Family CYPRINIDAE

KEY TO THE GENERA AND SPECIES OF CYPRINIDAE FROM LIBERIA

1*a*. Dorsal rays iii, 10 or 11; mouth inferior with a hard bony sheath or cutting edge inside the lips; groove of lower lip not interrupted by a frenum near tip of lower jaw; anterior barbel absent or rudimentary; posterior barbel shorter than eye concealed when mouth is closed, snout 1¾ to 2 in head; eye above midaxis of head, 5¾ to 7 times in the head; pelvics inserted under the 5th or 6th branched ray of dorsal; scales 35, 5 above and 4 below lateral line; anal iii, 5_____Labeo curriei Fowler

1*b*. Dorsal rays iii, 8, rarely 7 or 9 branched rays; mouth with the bony cutting edges inside of the lips.

2*a*. Anal rays iii, 10; cheeks ⅘ covered by the suborbital bones; no barbels; scale rows on side of body 42, and 7½ above and 1½ below lateral line; 14 scales around caudal peduncle; 19½ in front of dorsal fin; pelvic rays 9; pectoral 15; distance from origin of dorsal to midcaudal fin base equal to distance from origin of dorsal to occiput (or end of scaled region in front of dorsal); inner edges of lips finely plicate. Color.—Two irregular rows of blackish blotches anteriorly, the lower row ending with the 6th spot, but the upper row of 14 spots continuing to base of caudal fin (one of these on opercle)_____Barilius silex, new species

2*b*. Anal rays iii, 5; cheeks less than ½ covered by the suborbital bones, two pairs of barbels present; pelvic fin rays 8.

3*a*. Fine parallel lines of papillae on sides and top of head, in groups on side of snout, cheeks, opercular apparatus, and top of snout; scales radiately striated; two pairs of barbels; simple rays of dorsal not bony or enlarged, but thin and segmented; suborbital bones narrow; lateral line complete; scale rows 22 to 24, usually 23; scales above lateral line 3½, below 2½; scales around caudal peduncle 10, and front of dorsal 8, rarely 9; pectoral 16 or 16; pelvics 8. Color.—A black band along midaxis of body and on snout, also on midrays of caudal fin but more diffuse.

Mannichthys lucileae, new genus and species

3*b*. Parallel lines of fine papillae or pores not occurring in groups on sides of snout, cheeks, and top of snout.

4*a*. Posterior suborbital bone under rear half of eye enlarged, 3 times wider than the adjacent anterior suborbital bone under the front half of eye; the expanded suborital bone covers ⅔ of the cheek the next-to-the-last simple ray of dorsal and anal fins movable and connected to the last simple ray by a membrane similar to that between the other rays; dorsal rays iii, 8; rarely iii, 7; scale rows 25 or 26; 3½ above and 2½ below lateral line; 12 scales around caudal peduncle and 10 in front of dorsal fin; a blackish band along midaxis more or less broken into 4 oblong spots.

Barbus flomoi, new species

4*b*. Suborbital bones below eye, both of the same approximate width, and narrow, not covering ¼ the cheek.

5*a*. Three large, roundish black spots along midaxis of body, first in front of dorsal, second over anal origin, and third on caudal peduncle; scales 24 to 26, usually 25, and 3½ above and 2½ scales below lateral line; scales around caudal peduncle 12, and

in front of dorsal 8; pelvics under the first and second branched rays of dorsal fin; depth of caudal peduncle 1¼ in its length; posterior barbel, 1½ to 1⅞ in eye; anterior barbel 1⅛ in eye----------Barbus trispilus (Bleeker)

5*b*. Color not as in 5*a*.

6*a*. A large oval black spot at rear of caudal peduncle; midaxis of body with an indistinct narrow blackish line; scales crossing lateral line 27 or 28, with 4½ above and 2½ below lateral line; 12 scales around caudal peduncle and usually 10 (rarely 11) in front of dorsal, both barbels about length or trifle longer than eye----------Barbus boboi, new species

6*b*. Color not as in 6*a*.

7*a*. Scales 26 or 27, with 3½ above and 2½ below lateral line; 10 scales in front of dorsal and 12 around caudal peduncle; posterior barbel 1¼ in eye; eye longer than snout 2¾ in head; black lateral band distinct, continuing on snout; no large black spots----------Barbus ablabes (Bleeker)

7*b*. Scales 21 or 22, with 3½ above and 2½ below lateral line; 8 scales in front of dorsal and 10 around caudal peduncle; barbels very small ½ to ⅔ eye; pectorals either reach or almost reach pelvic insertion; no large black spots; blackish lateral band, indistinct or absent; depth 3 to 3½ in standard length----------Barbus spurrelli Boulenger

Genus LABEO Cuvier

Labeo Cuvier, Règne animal, vol. 2, p. 194, 1817. (Type: *Cyprinus niloticus* Geoffroy.)

LABEO CURRIEI Fowler

Labeo curriei Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 236, fig. 8, 1919.

The National Museum collections contain the following:

U.S.N.M. No. 48512 (holotype), total length 210 mm., standard length, 160 mm., St. Pauls River, Liberia.

U.S.N.M. No. 48513, 3 paratypes, 115–134 mm., standard length, St. Pauls River, Liberia.

Genus BARILIUS Hamilton

Barilius Hamilton, Acc. fishes. Riv. Ganges, p. 384, 1822. (Type: *Cyprinus barila* Hamilton).

BARILIUS SILEX, new species

Plate 35, Figure 2

Holotype.—U.S.N.M. No. 118736, 79 mm. standard length, collected by Dr. Wm. M. Mann at Bromley, Liberia.

Description.—Based on the holotype, the only known specimen. All measurements are expressed in hundredths of standard length. Total length about 99.5 mm. (the tail fin somewhat broken). Length

of head 29.7; length of snout 8.6; greatest depth of body 24.7; diameter of eye 8.5; width of fleshy interorbital space 8.9; postorbital length of head 14.8; least preorbital or distance from eye to lower edge of preorbital above the maxillary 2.28; distance from tip of snout to rear of maxillary 16.2; length of base of dorsal fin 11.1; length of base of anal fin 14.4; length of caudal peduncle or distance from rear base of last anal ray to base of midcaudal fin rays 17.3; least depth of caudal peduncle 10.1; distance from snout to origin of dorsal 58.8; snout to origin of anal 70.9; snout to insertion of pelvics 54.2; length of longest ray of dorsal fin 17.8; length of longest ray of pectoral fin 21.3; length of longest ray of pelvic fin 13.7; length of longest ray of anal fin 14.3; length of longest ray of caudal fin 29.1; width of body behind head 11.5.

The following counts were made: Gill rakers on first gill arch of one side 2+5, short and rudimentary; scale rows on side of body from gill opening to base of caudal fin 42; scales above lateral line 7½ and below lateral line 1½; scale around caudal peduncle 14; scales in front of dorsal fin 19½; dorsal rays iii, 8; anal iii, 10; pectoral 15; pelvics 9; pharyngeal teeth on one side 4:3:2.

This new species has a compressed body; no barbels; the maxillaries extend to below rear of eye; the eye is equal to the length of the snout, and about 3 times in the head; the origin of the dorsal fin is farther back than usual as the distance from the origin of the dorsal fin to mid-base of caudal fin equals the distance from origin of dorsal to anterior edge of scaled portion in front of dorsal; mouth large, oblique, when closed a small symphyseal knob on lower jaw fits into a notch in tip of snout, the latter not projecting in front of jaws; the inner edges of the lips are finely plicate; the gill membranes extend a short distance forward before becoming narrowly joined to the isthmus; suborbital bones greatly expanded covering ⅘ or more of the cheeks; interorbital space almost flat, a trifle convex; dorsal profile almost straight, a little convex in front of eyes; the large axillary scales of pectoral and pelvic fins have an enlarged keel, this scale being connected with the fin by a dermal membrane on both pectoral and pelvic fins; mandible with numerous pores not arranged in lines; premaxillary protractile; lateral line below axis of body, complete; the almost parallel striae on scales slightly divergent.

Color (*in alcohol*).—Silvery on sides; pale tan above; on level of lower half of eye anteriorly but along mid-axis of caudal peduncle is a row of 13 oval blackish spots, the largest smaller than the eye and on opercle another spot, thus totaling 14; anteriorly below and between the black blotches, just above the lateral line are 9 smaller blackish spots; upper margin of eye pigmented; posterior dermal

margin of opercle pigmented; tip of lower jaw and upper lips with blackish pigment; tips of anterior dorsal rays white, then a diffuse blackish bar from middle of rays extends across dorsal fin to tips of last dorsal rays; base of dorsal pale; other fins pale; peritoneum silvery with scattered black pigment cells.

Remarks.—This new species of *Barilius* is closest to *B. steindachneri* Pellegrin and *B. engrauloides* Nichols. From *steindachneri* it differs in the more backward position of the dorsal, as in that species the distance from origin of dorsal to midbase of caudal fin is a little greater than the distance from origin of dorsal to front of eye, and the distance from dorsal origin to midbase of caudal fin is a little greater than to occiput in *B. silex*. *B. steindachneri* has 38 to 40 scales and 11 to 13 branched anal rays instead of 42 scales and 10 branched anal rays in the new species. *B. engrauloides* has 37 scales and 12 around the caudal peduncle instead of 42 and 14 respectively for *B. silex*. The color pattern consisting of two rows of alternating blackish blotches, anteriorly, on *B. silex* is a feature of the color pattern differing from any other species of *Barilius*, at least from western Africa.

Named *silex*, meaning flint stone but once used as a "firestone," in reference to the Smithsonian-Firestone Expedition to Liberia.

MANNICHTHYS, new genus

This new genus is characterized by its radiately striated scales, complete lateral line, two pairs of barbels; the simple rays of the dorsal and anal fins are weak, not enlarged and bony but cross-striated and close together; the pelvics are inserted about under the base of the first branched dorsal ray; the pharyngeal teeth are 5:3:2–2:3:5 to 4:3:2–2:3:4; dorsal fin rays iii, 8; anal iii, 5; suborbitals narrow.

The most important character of this new genus consists of the fine lines of papillae or pores, almost parallel, in groups on the sides of the snout, cheeks, opercular apparatus, between the dentary bones on lower jaw, and on dorsal anterior surface of head. In regard to the character of the parallel lines of pores this new genus resembles the Asiatic genera *Cyclocheilichthys* and *Oreichthys* Smith. It differs from the former genus in the absence of bony denticulated simple dorsal rays and from the latter in having two pair of barbels and a complete lateral line.

This new genus differs from *Barbus* as applied to certain African cyprinids in having the lines of pores on the head. It traces through keys prepared by Boulenger, by Holly, and by Pellegrin on African fishes to the genus *Barbus*, but the species referred to that genus do not have the lines of pores on the head.

Genotype.—Mannichthys lucileae, new species. Characters of the genus are those of the new species described below.

Named *Mannichthys* in honor of Dr. William Mann who helped collect the material on which this genus is based.

MANNICHTHYS LUCILEAE, new species

PLATE 35, FIGURE 3

Holotype.—U.S.N.M. No. 118746, 60.3 mm. standard length, collected near Bromley by Dr. Mann.

Paratypes.—U.S.N.M. No. 118744, 51 specimens, from 34 to 62 mm., were collected with the type and bear the same data; U. S. N. M. No. 118745, 38 specimens, 28 to 57 mm. standard length, were collected by Dr. Mann on Gibi Mountain; U. S. N. M. 50961, 4 specimens, 40 to 50 mm., from the Gold Coast, Africa.

Description.—This description is based on the holotype and 93 paratypes from Liberia and the Gold Coast. All measurements are expressed in hundredths of the standard length, those for the holotype are given first, followed by a paratype. Total length in mm. 76.7 and 65; standard length in mm. 60.3 and 52. Length of head 27.9; 27.9; length of snout 9.5; 8.85; greatest depth of body 29.4; 28.9; diameter of eye 9.5; 9.6; width of fleshy interorbital space 10.3; 10.8; postorbital length of head 12.8; 11.7; least preorbital or distance from eye to lower edge of preorbital 4.0; 3.3; distance from tip of snout to rear of maxillary 7.8; 7.9; length of anterior barbel 6.8; 6.55; length of posterior barbel 9.13; 7.5; length of caudal peduncle or distance from rear base of last anal ray to midbase of caudal rays 22.4; 20.2; least depth of caudal peduncle 13.3; 12.7; distance from snout to origin of dorsal 49.2; 49.0; snout to origin of anal 76.3; 74.8; snout to insertion of pelvics 51.1; 50.4; length of longest ray of dorsal 28.4; 26.9; length of longest ray of pelvic 20.7; 20.2; longest ray of pectoral 21.6; 20.2; longest ray of anal 18.2; 17.7; longest ray of caudal 29.9; —.

The following counts were made: Gill rakers on one paratype 2+5; scale rows crossing lateral line 23; 24; 22; 23; 22; 23; 22 and 22; scales above lateral line always 3½, and below lateral line (pelvic insertion or anal origin) always 2½; scales around caudal peduncle always 10; scales in front of dorsal 8; 8; 8; 8; 8; 8; 9; 9; dorsal rays always iii, 8, and anal always iii, 5; pectoral fin rays 16; 15; 15; 16; 16; 16; pelvics always with 8 rays. Pharyngeal teeth 5:3:2–2:3:5 to 4:3:2–2:3:4.

Below the suborbital bones on lower half of snout and on cheeks are vertical rows of tiny pores or papillae somewhat raised above the general level of the skin; on the lower part of the snout above the

mouth, beginning at the base of the anterior barbel and continuing posteriorly are parallel lines of pores, close together but on the cheek these lines are much farther apart; in front of isthmus on under side of head between dentary bones many of these lines of pores cross close together. A few of the vertical lines are present on the opercular apparatus. These parallel lines are most apparent on the top of the head between the front of the eyes and dorsal surface of the snout, but absent on tip of snout and along middle sides of snout where the blackish lateral band extends forward to tip of snout. Scales with the striae arranged like the spokes in a wheel (radiately striated); mouth short, a little oblique, not reaching to below front of eye; gill membranes broadly joined to the isthmus; snout bluntly rounded; premaxillaries protractile; lower lip with a frenum at tip of chin, the edge of lip not free across the chin; no frenum on upper lip; interorbital space flat; the dorsal contour from origin of dorsal to over front of eyes almost straight; the greatest depth of body at origin of dorsal; pectorals not quite reaching to insertion of pelvics and the latter reaching to anus but not quite to the anal fin origin; pectorals pointed, the upper ray longest; first rays of dorsal and anal longest; the posterior margin of the dorsal a little concave, that of the anal truncate to a trifle concave; caudal fin forked; gill rakers short and blunt 2+5; pelvics with accessory scale.

The color pattern consists of a black lateral band along the mid-axis of the body from tip of snout to midbasal portion of caudal fin rays more or less visible to tip of these rays on most specimens; on some specimens the black lateral band is more intense on the opercle almost forming a blackish blotch; posterior margin of the scales pigmented, intensely black along lateral line but not interrupted by the lateral line to form a light or pale streak along the lateral line; upper ray of pectoral a little blackish, second simple ray of dorsal blackish, anterior tip of dorsal fin blackish, this pigment sometimes including a little of the membrane of the third branched ray; other fins plain pale.

Remarks.—This new species may be closely related to *Barbus gambiensis* Svensson because the author mentions "head with numerous lines of fine pores likely belonging to the censory lateral line system" but these are not shown in his figure unless they are represented by the lengthwise lines under the eye. *Barbus gambiensis* differs from the new species in having 12 scales around the caudal peduncle, 23 to 25 scale rows instead of 10 and 22 to 24 respectively. In addition the black line above the lateral black band is absent in *Mannichthys lucileae.*

Named *lucileae* in honor of Lucile Mann, wife and companion of Dr. William Mann.

Genus BARBUS Cuvier and Cloquet

Barbus Cuvier and Cloquet, Dict. Nat., ed. 2, vol. 4, Suppl., p. 4, 1816.

BARBUS FLOMOI, new species

Plate 36, Figure 1

Holotype.—U.S.N.M. No. 118737, 56.5 mm. standard length, collected near Bellyella, March 23–30, 1940, by Dr. Mann.

Paratypes.—U.S.N.M. No. 118738, 23 specimens, 27 to 60 mm. standard length, same collection data as the type.

Description.—Based on the holotype and 23 paratypes listed above. All proportional measurements expressed in hundredths of the standard length, those for the holotype first, followed by detailed measurements of a paratype. Total length 73.2; 50.8 mm. Standard length 56.5; 39.0 mm. Length of head 27.3; 27.4; length of snout 8.5; 9.0; greatest depth of body 29.9; 32.0; diameter of eye 6.4; 7.7; width of interorbital space 10.6; 10.5; postorbital length of head 14.5; 15.1; least preorbital or distance from eye to lower edge of preorbital above rear of maxillary 3.6; 3.6; distance from tip of snout to rear of maxillary 9.0; 8.5; length of anterior barbel 7.2; 7.4; length of posterior barbel 9.7; 11.0; length of caudal peduncle or distance from rear base of last anal ray to midbase of caudal fin 22.1; 24.3; least depth of caudal peduncle 14.9; 14.1; distance from snout to origin of dorsal 51.6; 51.0; snout to origin of anal 74.4; 69.8; snout to insertion of pelvics 50.0; 47.2; length of longest ray of dorsal 22.3; 24.3; length of longest ray of pelvic 17.0; 18.5; length of longest ray of pectoral 19.3; 20.8; length of longest ray of anal 16.3; 16.9; length of longest ray of caudal 28.1; 30.8.

The following counts were made: Gill rakers on one paratype were 2+4 or 5; scale rows crossing lateral line 26; 26; 25; 26; scales above lateral line 3½; 3½; and below lateral line 2½; 2½; scales around caudal peduncle always 12; scales in front of dorsal fin always 10; dorsal rays iii, 8; iii, 8; iii, 8; iii, 8; iii, 8; iii, 8; iii, 8; iii, 7; anal rays always iii, 5; pectoral rays 15; 16; pelvic rays always 8; pharyngeal teeth 5:3:2 or 2:3:5.

This new species has a somewhat compressed body; radiately striated scales; complete lateral line; two pair of barbels; the simple rays of the dorsal fin not bony, not enlarged or denticulate; absence of parallel lines of pores on the head; insertion of pelvic fins under or a very, very little in front of origin of the dorsal fin; pharyngeal teeth are 5:3:2; dorsal rays iii, 8, rarely iii, 7; anal iii, 5; the suborbitals are expanded, the bone below the rear of eye covering about ⅔ of the cheek, and the suborbital bone below front of eye about ⅓ the width of the posterior bone below rear of eye; the

next to the last simple ray of both dorsal and anal fins is movable and connected to the last simple ray by only a membrane; this next to the last simple ray of the dorsal fin is spine-like; the lips are thin, the groove of the lower lip is interrupted at the tip of the chin by a narrow frenum; premaxillary protractile; mouth a little oblique, the rear edge of the maxillary reaching to just underneath the front margin of the eye; pectorals not quite reaching to insertion of pelvics; pelvics not quite reaching to the anus; snout rounded, the lower jaw a little shorter than upper, the snout not projecting beyond premaxillary; caudal fin forked.

The color is brown above, paler below, with a blackish band along the midaxis broken into 4 blackish spots on some specimens which more or less fuse with the black band, or the spots are absent except the last at base of midcaudal fin rays; when the spots are present the first occurs just above the lateral line on about the 5th and 6th scale rows crossing the lateral line; the second black spot just behind and below rear of base of dorsal fin, the third above and just behind the rear base of anal fin usually is more diffuse and less distinct than the others and the last black spot more intense than the others at rear of caudal peduncle on midaxis; the posterior margins of the scales are strongly pigmented with blackish; lower lip black; upper lip and front of snout blackish; dorsal, pectoral and caudal fins dusky; anal and pelvics white; peritoneum pale with a few black specks.

Remarks.—This new species resembles somewhat *Barbus trispilus* but differs in its color pattern; the spots when present number 4 instead of 3; it differs from other cyprinids with a similar color pattern in having the suborbital bone below rear half of eye expanded, 3 times wider than the adjacent anterior suborbital bone, and covering at least ⅔ of the cheek in combination with the free simple rays of dorsal and anal fins, the next to last simple ray attached to the last simple ray of these fins by a membrane and not at all fused or attached to it firmly.

Named *flomoi* after one of the Africans who helped Dr. Mann collect specimens.

BARBUS TRISPILUS (Bleeker)

Puntius* (*Barbodes*) *trispilus BLEEKER, Nat. Verh. Vet. Haarlem, vol. 18, No. 2, p. 113, pl. 23, fig. 2, 1863.

Barbus camptacanthus var. ***liberiensis*** STEINDACHNER, Notes Leyden Mus., vol. 16, p. 80, 1894 (Robertsport; Grand Cape Mt.).

Barbus trispilus BOULENGER, Cat. Fresh-water fishes Africa, vol. 2, p. 163, 1911 (Liberia).

U.S.N.M. No. 118739, contains 33 specimens, 30 to 79 mm. standard length, from Gibi Mountain, 900 feet elevation, collected by Dr. Mann.

BARBUS BOBOI, new species

PLATE 36, FIGURE 2

Holotype.—U.S.N.M. No. 118740, 41.5 mm. standard length, collected at about 900 feet elevation on Gibi Mountain (Mt. Si), April 10–16, 1940, by Dr. Mann.

Paratypes.—U.S.N.M. No. 118741, 33 specimens, 28 to 52 mm. standard length, bearing same collection data as the type; U.S.N.M. No. 118742, 42 specimens, 32 to 48 mm., taken by Dr. Mann at Bromley; U.S.N.M. No. 118743, 1 specimen, 29 mm., collected by Dr. Mann at Harbel.

Description.—This description is based on the holotype and the 76 paratypes listed above. All measurements are expressed in hundredths of the standard length, those for the holotype first, followed by measurements of one of the paratypes. Total length 53.7; 48.0 mm. Standard length 41.5; 36.5. Length of head 29.6; 28.5; length of snout 7.7; 9.9; greatest depth of body 25.1; 23.3; diameter of eye 10.1; 9.9; width of fleshy interorbital space 8.2; 9.0; postorbital length of head 12.3; 12:1; least preorbital or distance from eye to lower edge of preorbital near rear of maxillary 2.2; 2.5; distance from tip of snout to rear of maxillary 8.4; 8.5; length of anterior barbel 12.8; 11.2; length of posterior barbel 13.0; 11.8; length of caudal peduncle or distance from rear base of last anal ray to midbase of caudal fin 20.7; 19.2; least depth of caudal peduncle 13.2; 13.2; distance from snout to origin of dorsal 50.8; 50.7; snout to origin of anal 73.5; 74.6; snout to insertion of pelvics 52.2; 53.4; length of longest ray of dorsal 25.3; 27.4; longest ray of pelvic 20.7; 18.1; longest ray of pectoral 21.2; 19.7; longest ray of anal 17.8; 18.1; longest ray of caudal 32.5; 31.5.

The following counts were made: Gill rakers on one paratype were 2+4 or 5; scale rows crossing lateral line 27; 28; 27; 28; 27; scales above lateral line always 4½ and below lateral line (pelvic base to lateral line) always 2½; scales around caudal peduncle always 12; scales in front of dorsal fin 10; 11; 10; 10; 10; dorsal rays always iii, 8; anal always iii, 5; pectoral 14–14; 15; pelvic always 8; pharyngeal teeth on one paratype 5 : 3 : 2–2 : 3 : 4.

Scales rather large, radiately striate; lateral line complete; two pair of barbels both of about same length and a little longer than eye; no parallel lines of minute pores on the head; mouth slightly inclined, subinferior, the snout projecting a little; groove of lower lip interrupted by a frenum at tip of chin; premaxillary protractile; interorbital space flattish; body somewhat compressed; pelvic insertion under the first branched ray of dorsal; caudal fin forked; posterior margin of dorsal and anal fins slightly concave; pectoral fin somewhat pointed;

rear edge of maxillary not quite reaching to under front margin of eye; pelvics not quite reaching to the anus and the pectorals not reaching to base of pelvics; snout rounded.

The most characteristic color mark is a single blackish oval spot, almost size of eye, at rear of caudal peduncle along midaxis covering the last three scales, but only the width of one scale along lateral line; tip of snout blackish; pigment over orbits more intense and on occiput; posterior margin of scales pigmented and those along lateral line intensely pigmented posteriorly but the lateral line divides this pigment into upper and lower spots to give the appearance of a double row of pigment spots along the lateral line; scales below lateral line not pigmented; a little black pigment at origin of dorsal and on some specimens the pigment is more distinct at each side of base of dorsal fin along the upper part of the back; base of anal fin with black pigment; some specimens show a black line along midaxis above lateral line; this fades posteriorly on caudal peduncle.

Remarks.—This new species differs from other species in the genus *Barbus* by having the large caudal spot in combination with 27 or 28 scales in lateral line; 12 scales around the caudal peduncle, 10 or 11 scales in front of the dorsal fin, among other characters.

Named *boboi* for one of the men who helped Dr. Mann collect fishes.

BARBUS ABLABES (Bleeker)

Puntius (*Barbodes*) *ablabes* BLEEKER, Nat. Verh. Vet. Haarlem, vol. 18, No. 2, p. 114, pl. 23, fig. 1, 1863.

Barbus ablabes STEINDACHNER, Notes Leyden, Mus., vol. 16, p. 79, 1894 (Hill Town, Liberia).—BOULENGER, Cat. fresh-water fishes Africa, vol. 2, p. 156, 1911 (Liberia).

U.S.N.M. No. 118734 contains 10 specimens, 28 to 57 mm., collected at Bellyella, by Dr. W. M. Mann.

BARBUS SPURRELLI Boulenger

Barbus spurrelli BOULENGER, Proc. Zool. Soc. London, p. 51, pl. 3, fig. 1, 1913.

U.S.N.M. No. 118735 contains 3 specimens, 32 to 55 mm., from Bellyella, collected by Dr. Mann.

Family SILURIDAE

ARTIFICIAL KEY TO THE SILURIDAE REPORTED FROM LIBERIA

1*a*. Dorsal and anal fins single, very long with articulated rays, but without spines; adipose dorsal absent; gill membranes free from the isthmus; eye with a free border; pectoral and pelvic fins present, well developed.

2*a*. Dorsal rays 82 to 89; anal 63 to 77 (see table for fin ray counts); dorsal and anal fins not actually joined to the caudal but no free space between them; depth 8 in standard length, 9 in total length; maxillary barbel reaches almost to tip of pectoral fin; nasal barbel reaches to upper edge of gill opening; about 8 to 10 branchiae or branchial branches in the accessory gill chamber ..... Clarias salae Hubrecht

2*b*. Anal rays usually fewer than 62.

3*a*. Dorsal rays 55; anal 50 (see table 3)___Clarias büttikoferi Steindachner

3*b*. Dorsal rays 70 to 82 (74 in a specimen from Liberia); anal rays 52 to 63 (52 in a Liberian specimen); dorsal and anal fins not joined to caudal and with but little or no space between them; depth 6 or 7 in total length; maxillary barbel reaching past pectoral sometimes to pelvics; nasal barbel as long as head (after Boulenger).

Clarias angolensis Steindachner

3*c*. Dorsal rays 60 to 68 (64 to 66 in counts made on Liberian material); anal 48 to 55 (in Liberian material); depth 5½ to 6 in standard length and 6¼ to 6¾ in total length; dorsal and anal not joined to caudal fin but with no free space between them; maxillary barbel reaches to near end of pectoral fin; nasal barbel reaches to rear of base of pectoral fin.

Clarias liberiensis Steindachner

1*b*. First dorsal fin if present very short, composed of but a few rays, or the dorsal fin is divided into two parts, the posterior adipose.

4*a*. A rayed dorsal fin absent, but an adipose fin present; anal short with 3 simple rays and 6 to 10 branched rays; gill membranes widely joined to the isthmus; adipose fin far back over the anal; pectoral, without spines, but with about 9 soft rays, the first simple, others branched; under the skin all over the body is an electric gland, whitish and jellylike; body and head blotched with blackish; a pale bar across caudal peduncle; central part of caudal fin blackish, the margin white.

Malapterurus electricus (Gmelin)

4*b*. A rayed dorsal fin and an adipose fin both present, these two fins separate; no electric gland under the skin; gill membranes free from isthmus, deeply notched.

5*a*. Dorsal fin is short, with a spine and 5 or 6 branched rays and a very small adipose fin, its base not longer than the base of two dorsal fin rays; body strongly compressed; the anal fin very long; caudal fin forked; eye with free border; pectoral with a spine.

6*a*. Maxillary barbel longer than outer mandibulary barbel; anal rays 54 to 60; pectoral spine strongly serrated on inner side; nasal barbel not longer than eye; depth 3 to 4⅔ in total length and head 5 or 6; a blackish obscure blotch on side above the pectoral fin (after Boulenger)_____Eutropius niloticus (Rüppell)

6*b*. Maxillary barbel longer than outer mandibulary barbel; anal rays 46 to 50; pectoral spine moderately serrated on inner side; nasal barbel not longer than eye; depth 4 to 4⅔ and head 5 times in total length; a blackish blotch above pectoral fin.

Eutropius liberiensis Hubrecht

6*c*. Maxillary barbel not longer than outer mandibular barbel; anal rays 52 to 59; maxillary and nasal barbels of about same length, the nasal barbel a little longer than eye; depth 3⅗ to 4⅓ and head 5 to 5⅓ in total length; inner edge of pectoral spine strongly serrated.

Eutropius mandibularis Günther

5*b*. Rayed or first dorsal fin base short, the length of the base of the adipose fin is longer than the length of the base of two dorsal rays.

7*a*. Length of base of adipose dorsal fin about same length as diameter of the eye; dorsal rays about I, 6; anal with 5 or 6 simple rays and 8 or 9 branched rays; nasal barbel present but short; maxillary barbel reaches a little past front base of pectoral; a small patch of teeth on head of palatines.

8*a*. Width of head at front of eye 1¼ times snout; length of nasal barbel not over ⅓ eye; eye 4⅓ in head and 1¾ in snout; first and second soft dorsal rays about length of head; inner edge of pectoral spines strongly serrated; lobes of caudal fin not long and pointed about length of head_____Chrysichthys nigrodigitatus (Lacepède)

8*b*. Width of head at front of eyes equal to length of snout; nasal barbel equal to ½ eye; eye 3½ in head and 1¼ in snout; first and second soft dorsal rays a little longer than the head and 1½ longer than the dorsal spine; inner edge of pectoral spines strongly serrated; lobes of caudal fin long and pointed the upper lobe 1⅛ length of head. Chrysichthys filamentosus Boulenger

7*b*. Length of base of adipose fin many times longer than eye diameter.

9*a*. Dorsal rays about 30 to 33; anal 41 to 52; adipose fin supported by prolongations of the neural spines; gill rakers 18 to 20; base of adipose fin as long as length of head and a little shorter than base of rayed dorsal; depth of body 5¾ to 6 in standard length and 6 to 7 in total length; nasal barbel reaches to opposite insertion of pectoral fin; maxillary barbel extends somewhat behind tips of pectoral fins; margins of anal, caudal, and dorsal fins white; body blackish above, white below. Heterobranchus isopterus Bleeker

9*b*. Dorsal rays 7; without a spine.

10*a*. Adipose dorsal fin not continuous with the caudal fin; origin of dorsal fin a little in advance of insertion of pelvics; caudal fin with a wide black bar across its central portion; the basal third white and distally white; the skin at base of caudal fin rays extends posteriorly over the base of the caudal fin rays in the form of 6 or 7 dermal papillae or projections; eye very small, 4 in snout; depth 6½ in standard length and 8 in total length; some specimens have 5 pale saddles dorsally, one over gill opening, the second in front of dorsal origin and another under base of dorsal; the fourth at origin of adipose and last at rear base of adipose fin; caudal fin concave; anal rays 9. Amphilius pictus Nichols and LaMonte

10*b*. Adipose dorsal fin continuous with the caudal fin; origin of dorsal fin behind the base of the pelvic fins; caudal fin plain grayish, rounded; upper part of body pale brownish with small diffuse spots arranged in an irregular row on sides; pores of lateral line far apart; eye very small, about 5 in snout; depth about 7¾ to 8 in standard length and 9¼ in total length; anal rays 11_____Paramphilius firestonei, new species

Genus CLARIAS Scopoli

Clarias Scopoli, Introductio ad historiam naturalem, Prague, p. 455, 1777.

Clarias Bleeker, Systema silurorum revisum, Ned. Tijdschr. Dierk, vol. 1, p. [44] 120, 1863. (Type designated *Clarias morphus* Valenciennes=*C. batrachus* Linnaeus.)

CLARIAS SALAE Hubrecht

Clarias salae Hubrecht, Notes Leyden Museum, vol. 3, p. 68, 1881 (St. Pauls River, Liberia).—Büttikofer, Reisebilder aus Liberia, vol. 2, p. 449, 1890

(Liberia).—Steindachner, Notes Leyden Mus., vol. 16, p. 53, 1894 (St. Pauls, Junk, and Duqueah Rivers).—Boulenger, Cat. fresh-water fishes Africa, vol. 2, p. 264, 1911 (Liberia); vol. 4, p. 288, 1916 (Nanna Kru, Liberia).—Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 233, 1919 (St. Pauls River near Monrovia).—Pellegrin, Poiss. eaux douces Afr. Occid. p. 163, 1923 (Liberia).—Nichols and La Monte, Amer. Mus. Nov., No. 626, p. 2, 1933 (Kaleata, Liberia).

Table 3.—*Fin ray counts made on various species of* Clarias *from Liberia after the skin was dissected to expose the bony elements of the fins*

No.	Dorsal fin rays				Anal fin rays			
	C. salae	*C. angolensis* [1]	*C. liberiensis*	*C. buttikoferi* [2]	*C. salae*	*C. angolensis* [1]	*C. liberiensis*	*C. buttikoferi* [2]
48							1	
49							1	
50							1	1
51							1	
52						1	2	
53								
54								
55				1				
56								
57								
58								
59								
60								
61								
62								
63					1			
64			1					
65			4		1			
66			1		2			
67								
68					3			
69								
70								
71					4			
72								
73								
74		1						
75								
76								
77					1			
78								
79								
80								
81								
82	1							
83	3							
84	2							
85	1							
86	1							
87	1							
88								
89	3							

[1] Counts by Fowler, 1919.
[2] Counts by Steindachner, 1894.

The following specimens have been examined:

U.S.N.M. Nos. 48495–48498, 4 specimens, St. Pauls River, Mount Coffee, Liberia, Rolla P. Currie.

U.S.N.M. No. 118771, 10 specimens, 94 to 140 mm., Gibi Mountain, W. M. Mann.

U.S.N.M. No. 118772, 12 specimens, 86 to 210 mm., Bendaja, W. M. Mann.

U.S.N.M. No. 118773, 25 specimens, 110 to 278 mm., Bromley, W. M. Mann.

U.S.N.M. No. 118774, 24 specimens, 101 to 390 mm., Harbel, W. M. Mann.

U.S.N.M. No. 118775, 3 specimens, 92 to 169 mm., Bellyella, W. M. Mann.

M.C.Z., 1 specimen, 69 mm., Du Queah River, Liberia, July 1926, G. M. Allen.

M.C.Z., 1 specimen, 182 mm., Gbanga, Liberia, Sept. 26, 1926, G. M. Allen.

CLARIAS ANGOLENSIS Steindachner

Clarias angolensis STEINDACHNER, Verh. Zool. Bot. Ges. Wien, vol. 16, p. 766, pl. 13, figs. 4, 7, 1866.—FOWLER, Proc. U. S. Nat. Mus., vol. 56, p. 232, 1919 (Monrovia).

It is very probable that an error was made in counting the fin rays of this 98 mm.-specimen, unless the skin was dissected from one side of the median fins. The specimen should be reexamined, since no further counts on any species of *Clarias* from Liberia have given 74 dorsal and 52 anal rays. Fowler's 1919 specimen may be *C. liberiensis*.

CLARIAS LIBERIENSIS Steindachner

Clarias liberiensis STEINDACHNER, Notes Leyden Museum, vol. 16, p. 54, 1894 (Buluma and Junk River).—BOULENGER, Cat. fresh-water fishes Africa, vol. 2, p. 258, fig. 214, 1911 (Liberia).—PELLEGRIN, Poiss. eaux douces Afr. Occid., p. 102, 1923 (Liberia).—NICHOLS and LAMONTE, Amer. Mus. Nov. No. 626, p. 2, 1933 (Kaleata, Liberia).

Clarias bulumae STEINDACHNER, Notes Leyden Mus. vol. 16, p. 55, 1894 (Buluma).

The variation in fin ray counts of this and other closely related species probably is caused by inaccurate counts. It is positively necessary, except in rare cases, to dissect the skin from one side of the median fins in order to count the rays. Thus it is likely that *Clarias büttikoferi* Steindachner is the same as *C. liberiensis*, and that Boulenger, 1911, p. 258, is in error in giving anal rays 44 or 45 when they actually are 48 to 55 on the Liberian material that I have studied.

The following material has been examined:

U.S.N.M. No. 118786, 3 specimens, 52–92 mm., Harbel, W. M. Mann.

U.S.N.M. No. 118787, 2 specimens, 116 and 117 mm., Bendaja, W. M. Mann.

U.S.N.M. No. 118788, 7 specimens, 69–91 mm., Gibi Mountain, W. M. Mann.

M.C.Z., 1 specimen, 42 mm., little stream of clearing at Firestone No. 3 plantation, Liberia, July 1926, G. M. Allen.

CLARIAS BÜTTIKOFERI Steindachner

Clarias büttikoferi STEINDACHNER, Notes Leyden Mus., vol. 16, p. 53, 1894 (Buluma, Liberia).—BOULENGER, Cat. fresh-water fishes Africa, vol. 2, 261, 1911 (Liberia).—PELLEGRIN, Poiss. eaux douces Afr. Occid. p. 164, footnote, 1923 (Liberia).

Genus MALAPTERURUS Lacepède

Malapterurus Lacepède, Hist. Nat. Poiss., vol. 5, p. 90, 1803. (Type: *Malapterurus electricus* Lacepède.)

MALAPTERURUS ELECTRICUS (Gmelin)

Silurus electricus Gmelin, Syst. Nat., vol. 1, p. 1351, 1789.—Hubrecht, Notes Leyden Mus., vol. 3, p. 69, 1881 (St. Pauls River).—Büttikofer, Reisebilder aus Liberia, vol. 2, p. 447, 1890 (Liberia).—Steindachner, Notes Leyden Mus., vol. 16, p. 62, 1894 (St. Pauls River at Soforeh Place and Grand Cape Mt.).—Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 234, 1919 (Mt. Coffee near Monrovia).

The following specimens have been examined:

U.S.N.M. No. 44829, 1 specimen, Liberia, O. F. Cook.

U.S.N.M. Nos. 48492, 48493, 2 specimens, St. Pauls River, Mount Coffee, Rolla P. Currie.

U.S.N.M. No. 118776, 2 specimens, 36 to 77 mm., Harbel, W. M. Mann.

U.S.N.M. No. 118777, 8 specimens, 59 to 153 mm., Bendaja, W. M. Mann.

U.S.N.M. No. 118778, 4 specimens, 82 to 130 mm., Bromley, W. M. Mann.

U.S.N.M. No. 118779, 5 specimens, 75 to 100 mm., Gibi Mountain, W. M. Mann.

M.C.Z., 1 specimen, 170 mm., St. Pauls River, Pea'htah and vicinity, October 1926, D. H. and G. M. Linden.

Genus EUTROPIUS Müller and Troschel

Eutropius Müller and Troschel, Horae Zool. Beschreibung und Abbild. neuer Fische, vol. 3, p. 6, 1849. (Type: *Hypophthalmus niloticus* Rüppell.)

EUTROPIUS NILOTICUS (Rüppell)

Hypophthalmus niloticus Rüppell, Beschr. neuer Fische Nil, p. 6, pl. 1, fig. 1, 1829.—Hubrecht, Notes Leyden Mus., vol. 3, p. 69, 1881 (St. Pauls River).

Eutropius altipinnis Steindachner, Notes Leyden Mus., vol. 16, p. 57, 1894 (St. Pauls River at Soforeh Place).

EUTROPIUS LIBERIENSIS Hubrecht

Eutropius liberiensis Hubrecht, Notes Leyden Mus. vol. 3, p. 69, 1881 (St. Pauls River, Liberia).—Steindachner, Notes Leyden Mus., vol. 16, p. 59, 1894 (St. Pauls River).—Boulenger, Cat. fresh-water fishes Africa, vol. 2, p. 287, 1911 (Liberia).

EUTROPIUS MANDIBULARIS Günther

Eutropius mandibularis Günther, Ann. Mag. Nat. Hist., ser. 3, vol. 20, p. 112, 1867.—Steindachner, Notes Leyden Mus., vol. 16, p. 57, 1894 (Farmington River, Liberia).—Boulenger, Cat. fresh-water fishes Africa, vol. 2, p. 290, 1911 (Farmington River, Liberia).

Genus CHRYSICHTHYS Bleeker

Chrysichthys Bleeker, De visschen van den Indischen Archipel. I. Siluri, p. 60, 1858. (Type: *Pimelodus auratus* Geoffroy St. Hilaire.)

CHRYSICHTHYS NIGRODIGITATUS (Lacepède)

Pimelodus nigrodigitatus LACEPÈDE, Hist. Nat. Poiss., vol. 5, pp. 102, 108, 1803.
Chrysichthys nigrodigitatus HUBRECHT, Notes Leyden Mus., vol. 16, p. 59, 1894 (St. Pauls River at Soforeh Place).—BOULENGER, Cat. fresh-water fishes Africa, vol. 2, p. 321, 1911 (Senegal to Ogowe).—FOWLER, Proc. U. S. Nat. Mus., vol. 56, p. 233, 1919 (St. Pauls River near Monrovia).
Chrysichthys büttikoferi STEINDACHNER, Notes Leyden Mus., vol. 16, p. 60, 1894 (Fischermann See).

The following specimens have been examined:

U. S. N. M. No. 48494, 1 specimen, St. Pauls River, Mount Coffee, R. P. Currie.
U. S. N. M. No. 118780, 3 specimens, 140 to 165 mm., Bendaja, W. M. Mann.

CHRYSICHTHYS FILAMENTOSUS Boulenger

Chrysichthys filamentosus BOULENGER, Ann. Mus. Congo, vol. 2, p, 19, pl. 18, fig. 2, 1912 (type locality, Chiloango).

The United States National Museum collections contain 1 specimen, U. S. N. M. No. 118781, 133 mm., collected at Harbel by Dr. Mann.

Genus HETEROBRANCHUS Geoffroy St. Hilaire

Heterobranchus GEOFFROY ST. HILAIRE, Suite Hist. Poiss. Nil, p. 305, 1827. (Type: *H. bidorsalis* Geof. St. Hilaire.)

HETEROBRANCHUS ISOPTERUS Bleeker

Heterobranchus isopterus BLEEKER, Nat. Verh. Wet. Haarlem, vol. 18, p. 108, pl. 22, fig. 1, 1863.—PELLEGRIN, Poiss. eaux douces Afr. Occid. p. 168, 1923 (? bassin du Haut—Saint Paul).

I have examined the following specimens:

U.S.N.M. No. 118806, 1 specimen, 121 mm., Bellyella, W. M. Mann.
U.S.N.M. No. 118807, 6 specimens, 150 to 325 mm., Bromley, W. M. Mann.
M.C.Z., 10 specimens, 31 to 42 mm., Gbanga, Liberia, G. M. Allen.

Genus AMPHILIUS Günther

Amphilius GÜNTHER, Cat. Fish. British Mus., vol. 5, p. 115, 1864. (Type: *Pimelodus platychir* Günther.)

AMPHILIUS PICTUS Nichols and La Monte

Amphilius pictus NICHOLS and LA MONTE, Amer. Mus. Novitates No. 626, p. 1, 1933. (Types: From Kaleata, Liberia.)

The National Museum collections contain the following specimens:

U.S.N.M. No. 118677 (paratype), 1 specimen, Kaleata, Feb. 1932, G. W. Harley.
U.S.N.M. No. 118808, 1 specimen, 43 mm., Harbel, W. M. Mann.
U.S.N.M. No. 118809, 70 specimens, 35 to 56 mm., Bromley, W. M. Mann.
U.S.N.M. No. 118810, 16 specimens, 30 to 47 mm., Gibi Mountain, W. M. Mann.

PARAMPHILIUS Pellegrin

Paramphilius Pellegrin, Bull. Mus. Hist. Nat. Paris, vol. 13, p. 23, 1907. (Type: *P. trichomycteroides* Pellegrin.)

PARAMPHILIUS FIRESTONEI, new species

Plate 36, Figure 3

Holotype.—U.S.N.M. No. 118811, 56 mm. standard length, collected at Bromley, Liberia, by Dr. Wm. M. Mann.

Paratypes.—U.S.N.M. No. 118812, 29 specimens, 38 to 61 mm. standard length, same collection data as the type; U.S.N.M. No. 118813, 1 specimen, 49 mm. standard length, taken at Harbel by Dr. Mann.

Description.—Based on the holotype and 30 paratypes. All measurements are given in hundredths of the standard length, those for the holotype outside the parentheses and those for two paratypes within parentheses, respectively.

Total length in mm. 64 (69.2; 45); and standard length 56 (58.6; 38) in mm. Length of head 21.4 (20.1; 21.6); greatest depth 10.7 (14.7; 10.5); length of snout 7.14 (6.82; 7.1); diameter of eye 1.25 (1.37; 1.32); length of postorbital part of head 14.3 (13.3; 14.5); width of interorbital space 6.25 (6.0; 6.3); length of maxillary barbel 17.9 (19.6; 18.4); length of outer mandibular barbel 20.5 (23.9; 22.4); length of inner mandibular barbel 12.7 (14.5; 11.9); length of base of adipose dorsal fin 25 (19.6; 25.0); length of base of first dorsal fin 6.25 (5.8; 6.6); length of base of anal fin 12.5 (11.3; 12.6); distance from tip of snout to origin of first dorsal 50.1 (51.6; 49.7; distance from snout to origin of adipose dorsal 73.2 (77.6; 75.0); distance from snout to insertion of pelvic fin 46.1 (46.8; 45.2); distance from snout to insertion of pectoral fin 18.9 (17.6; 16.6); distance from snout to origin of anal fin 69.6 (70.2; 68.4); length of caudal peduncle 18.7 (17.6; 18.4); least depth of caudal peduncle 9.3 (8.2; 8.4); longest ray of dorsal fin 12.9 (11.9; 11.9); longest ray of anal fin 11.6 (13.7; 11.9); longest ray of pectoral fin 11.8 (11.9; 13.7); longest ray of pelvic fin 13.0 (12.5; 13.2); longest ray of caudal fin 16.1 (19.1; 17.9); dorsal rays 7 (7; 7); anal rays 12 (11; 12) first 5 simple; pectoral rays 7 (7; 7) first heavy and simple; gill rakers 3 on lower half of first gill arch.

Top of head depressed; mouth terminal, the lower jaw a trifle shorter than upper; gill membranes free from the isthmus deeply notched or extending far forward; cheeks swollen; eyes very small; maxillaries not reaching to under eyes; nasal openings widely separated without barbels; adipose fin continuous with the caudal fin; origin of dorsal fin a little behind a vertical through the rear base of the pelvic fin; anus located a little behind pelvic fin bases, about one head length in front

of anal origin; caudal fin a little rounded; lateral line present, the pores widely spaced and numbering about 11 to 17.

Color pale brown above, lighter below; upper parts of body with several small dark brown to blackish spots irregularly placed, usually a spot near mid-base of caudal fin and a dark bar across caudal fin a short way out from base of that fin; adipose fin dark brown; basal portion of dorsal fin dusky; other fins pale or white; barbels pale brown.

Remarks.—This new species differs principally from the only other species, *P. trichomycteroides* Pellegrin, referred to the genus *Paramphilius* in its more slender body, depth 8½ to 9 instead of 7, and the origin of the dorsal is behind the base of the pelvic fins instead of over their insertion.

Named *firestonei* in honor of the Smithsonian-Firestone Expedition, by which the collection of this material was made possible.

Family CYPRINODONTIDAE

KEY TO THE GENERA AND SPECIES OF CYPRINODONTIDAE REPORTED FROM LIBERIA

1*a*. The membrane connecting upper and lower lips is joined to the lower lip on the same general level as front margin of lower lip and not below the posterior angle of lower lip; lower lip curved upward, the contour of lower jaw from lateral aspect rounded; snout short, about 1½ in postorbital length of head, and 1⅘ to 2 in interorbital space.

2*a*. Dorsal rays 12 or 13; anal 15 to 16; scales 30 to 32; origin of dorsal fin over 4 to 6 anal rays; pectoral rays about 16 to 18; gill rakers on lower half of first arch about 11; pelvics short, not reaching anal fin and contained 1¼ to 1⅓ in postorbital part of head; eye contained 1½ in interorbital space and 2⅕ in postorbital part of head; depth 6 to 6⅓ in total length; upper base of caudal fin with a blackish speck or spot on females, obscured on males because of dark color; fins blackish on breeding males, pale and spotted on females; lower edge of caudal of males pale_____Aphyosemion liberiensis (Boulenger)

2*b*. Dorsal rays 7 to 10; anal 10 to 13.

3*a*. Pectoral rays 16 to 18; dorsal rays 9 or 10; anal 12 or 13; scales 29 or 30; depth 3½ to 4⅓ and head 3⅓ to 3⅔ times in total length; eye 3⅔ to 4 times in head and two in interorbital space; olive or brownish above, yellowish white below, sides with carmine spots, more or less arranged in lengthwise streaks (after Boulenger).

Aphyosemion calliurus (Boulenger)

3*b*. Pectoral rays 10 or 11; dorsal rays 7; anal 10 or 11; scales 22 or 23; origin of dorsal over the 4th or 5th anal ray; gill rakers about 12 to 14; a fine black line along mid-axis. Color.—Plain.

Micropanchax macrurus manni, new subspecies

1*b*. The membrane connecting upper and lower lips is joined to the lower lip considerably below the angle at posterior part of lower lip and below the general level of the lip anteriorly; lower lip but slightly curved upward giving a pointed aspect to snout when viewed from the side; snout longer, contained about 1 to 1⅕ in postorbital part of head and 1 to 1⅕ in interorbital space.

4*a*. Six or seven black color bars mostly below lateral line.

5*a*. Seven vertical blackish bars, more intense ventrally, the first on rear of head; second under pectoral fin; third close before pelvic base; fourth through anus; fifth through middle of base of anal fin at about 9th to 11th rays; sixth on caudal peduncle just behind dorsal fin base; and last at base of caudal fin rays; blackish under eye, and sides of lower jaw and lips; dorsal rays usually 10; anal 16 or 17; pectoral 16; scales 28 or 29.

Epiplatys sexfasciatus Gill

5*b*. Six vertical black bars on each side, first on the gill-cover; second under pectoral (none at base of pelvics) one through anus; one through middle of the anal fin; the fifth behind base of dorsal on caudal peduncle; and last at base of caudal fin; only last one or two extending to upper part of body. Color.—Somewhat reddish, males said to have red chins. Anal rays 15 or 16, dorsal rays usually 10; scales 25 to 27; depth about 4 in standard length, 5 in total length.

Epiplatys chaperi (Sauvage)

4*b*. Color not as in 4a.

6*a*. Dorsal rays 7 to 9.

7*a*. Anal 13 or 14; scales 26 or 27; depth 3 or 4 in total length and head 3½ to 3⅔; eye equals postorbital part of head and ⅔ interorbital space; male with numerous more or less distinct vertical bars_____Epiplatys spilauchen (A. Duméril)

7*b*. Anal 16 or 17; scales 27 to 29; pectoral rays about 16; origin of dorsal over the 11th or 12th anal ray; gill rakers on lower half of first arch 9 to 11; length of pelvics equal to distance from front of eye to rear of head; depth of caudal peduncle is ⅓ in its length measured from base of last anal rays to base of middle ray of caudal fin; caudal fin pointed, the middle rays 1⅓ times head; snout equals postorbital part of head and interorbital space; eye 1⅓ in snout and 1⅓ in interorbital space; brownish band along lower sides from eye to caudal fin base, ventrally yellowish, above band a narrow pale streak. the upper sides and back brownish; each scale on middle and upper sides with a scarlet narrow crescent-shaped spot; fins dusky; dorsal with reddish spots; under side of lower lip reddish; base of anal blackish.

Epiplatys bifasciatus (Steindachner)

6*b*. Dorsal rays 11 to 13; anal 16 to 18; pectoral 17 or 18; scales 28 or 29; origin of dorsal over 7th to 9th anal rays; about 10 or 11 gill rakers on lower half of first arch; eye 1½ in interorbital and 1½ in snout; snout 1⅕ in interorbital and 1⅕ in postorbital part of head; depth 5½ in total length_____Epiplatys fasciolatus (Günther)

Genus APHYOSEMION Myers

Aphyosemion Myers, Amer. Mus. Nov. No. 116, p. 2, 1924. (Type: *Aphyosemion castaneum* Myers.)

APHYOSEMION LIBERIENSIS (Boulenger)

Haplochilus liberiensis Boulenger, Ann. Mag. Nat Hist., ser. 8, vol. 2, p. 30, 1908 (Monrovia, 2 female types).—Boulenger, Cat. fresh-water fishes Africa, vol. 3, p. 48, fig. 35, 1915 (Monrovia).—Pellegrin, Poiss. eaux douces Afr. Occid., p. 229, 1923 (Monrovia).

The following specimens have been examined:

U.S.N.M. No. 118846, 2 specimens, 32 and 35 mm., Bromley, Dr. W. M. Mann. M.C.Z., 20 specimens, 17 to 40 mm., Du River, Liberia, Firestone No. 3 Plantation, July 1926, G. M. Allen.

APHYOSEMION CALLIURUS (Boulenger)

Haplochilus calliurus BOULENGER, Ann. Mag. Nat. Hist., ser. 8, vol. 8, p. 265, 1911 (types from Liberia).—BOULENGER, Cat. fresh-water fishes Africa, vol. 3, p. 59, fig. 45, ♂ and ♀ types, 1915 (Liberia).—PELLEGRIN, Poiss. eaux douces Afr. Occid., p. 233, 1923 (Liberia).

Genus MICROPANCHAX Myers

Micropanchax MYERS, Copeia, No. 129, p. 42, 1924. (Type: *Haplochilus schoelleri* Boulenger.)

MICROPANCHAX MACRURUS MANNI, new subspecies

PLATE 36, FIGURE 4

Holotype.—U.S.N.M. No. 118851, 20.3 mm. standard length (total length 28.3 mm.), collected by Dr. W. M. Mann at Harbel, Liberia.

Paratypes.—U.S.N.M. No. 118852, 4 specimens, 15.0 to 21.5 mm. standard length, same collection data as holotype.

Description.—Based on the holotype and 4 paratypes. All measurements are expressed in hundredths of the standard length, those for the holotype first, then followed by those for the paratypes in parentheses, respectively. Standard lengths (in mm.) 20.3 (18.5; 21.5; 17.0) and total lengths (in mm.) 28.3 (24.5; 28.6; 23.3); greatest depth of body 26.1 (25.4; 23.7; 24.6); length of head 29.5 (28.6; 27.9; 28.2); diameter of eye 13.3 (12.4; 12.6; 11.8); width of bony interorbital space 14.3 (11.9; 12.1; 13.5); length of snout 7.4 (6.5; 7.0; 7.6); length of caudal peduncle or distance from base of last anal ray to base of midcaudal fin rays 28.1 (26.5; 25.1; 27.7); least depth of caudal peduncle 16.7 (15.1; 15.3; 17.1); length of postorbital part of head 10.3 (9.7; 9.3; 10.0); length of base of anal fin 15.8 (13.0; 16.3; 15.9); length of base of dorsal fin 7.9 (8.1; 8.8; 9.4); distance from tip of snout to origin of dorsal fin 65.5 (69.2; 68.4; 65.9); snout to origin of anal fin 63.1 (62.2; 61.4; 58.3); snout to insertion of pelvic fins 42.2 (42.2; 41.4; 41.8); snout to insertion of pectoral fins 29.1 (27.6; 28.4; 31.2); length of longest ray of pelvic fins 21.6 (—; 16.3; 18.8); length of longest ray of pectorals 29.5 (—; —; —).

The following counts were made: Dorsal rays 7 (7; 7; 7); anal rays 10 (10; 11; 11); pectoral rays 10 (11; 11; 11); pelvic rays 6 (6; 6; 6); number of scale rows from upper edge of gill opening to base of caudal fin 23 (22; 23; 23); number of scales around body at origin of dorsal fin 13 (13; 13; 14); number of scales around caudal peduncle 12 (11; 11; 12).

Color plain, with a narrow black line along midaxis; upper part of head blackish, fins dusky, the last rays of dorsal and anal fins elongate; caudal fin a little rounded; interorbital space bony and rather wide; snout short, the lower lip somewhat curved over tip of snout; teeth in jaws in two or three rows, the outer ones enlarged; probably no teeth on vomer; the membrane of upper lip joins the lower lip at the lateral posterior angle of the lower jaw which is on the same general level as front of lower lip and not below it, as in *Aplocheilus*.

This new subspecies of *Micropanchax* differs from *M. macrurus macrurus* in having 22 or 23 scales and 10 or 11 anal rays instead of 24 to 27 and 12 to 14, respectively. The small number of pectoral rays 10 or 11 appears to be an outstanding difference when compared with other cyprinodonts from West Africa. Unfortunately the pectoral rays of several species are not recorded but the usual number appears to be 15 to 18.

Named in honor of Dr. William M. Mann, director of the National Zoological Park, collector of the subspecies.

Genus EPIPLATYS Gill

Epiplatys Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 136. (Type: *Epiplatys sexfasciatus* Gill.)

EPIPLATYS SEXFASCIATUS Gill

Epiplatys sexfasciatus Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 136.
Haplochilus infrafasciatus Steindachner, Notes Leyden Mus., vol. 16, p. 76, 1894 (Junk River, Liberia).—Boulenger, Cat. fresh-water fishes Africa, vol. 3, p. 54, fig. 40, 1915 (Nanna Kru, Liberia).—Pellegrin, Poiss. eaux douces Afr. Occid., p. 231, 1923 (Liberia to Congo).

EPIPLATYS SPILAUCHEN (Duméril)

Poecilia spilauchena Duméril, Arch. Mus., vol. 10, p. 258, pl. 22, fig. 6, 1859.
Haplochilus spilauchen Steindachner, Notes Leyden Mus., vol. 16, p. 75, 1894 (Robertsport, Liberia).

EPIPLATYS BIFASCIATUS (Steindachner)

Haplochilus bifasciatus Steindachner, Sitz. Akad. Wiss. Wien, vol. 83, pt. 1, p. 199, 1881.

Dr. Mann collected the following specimens:

U.S.N.M. No. 118848, 22 specimens, 30 to 43 mm., Harbel.
U.S.N.M. No. 118849, 7 specimens, 38 to 46 mm., Bromley.
U.S.N.M. No. 118850, 8 specimens, 26 to 40 mm., Bendaja.

EPIPLATYS FASCIOLATUS (Günther)

Haplochilus fasciolatus Günther, Cat. fishes Brit. Mus., vol. 6, p. 358, 1866 (types a–e, Sierra Leone).—Nichols and LaMonte, Amer. Mus. Nov., No. 626, p .2, 1933 (Kaleata, Liberia).
Aplocheilus spilauchen Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 241, 1919 (St. Pauls River).

The following specimens have been examined:

U.S.N.M. No. 48522, 20 specimens, 26 to 63 mm., St. Pauls River (from a creek), R. P. Currie.

U.S.N.M. No. 48523, 6 specimens, 37 to 53 mm., St. Pauls River (from a creek), R. P. Currie.

U.S.N.M. No. 48524, 3 specimens, 49 to 55 mm., St. Pauls River (from a creek), R. P. Currie.

U.S.N.M. No. 118841, 67 specimens, 21 to 66 mm., Gibi Mountain, 900 feet elevation, W. M. Mann.

U.S.N.M. No. 118842, 6 specimens, 24 to 39 mm., Bellyella, W. M. Mann.

U.S.N.M. No. 118843, 68 specimens, 28 to 64 mm., Bromley, W. M. Mann.

U.S.N.M. No. 118844, 13 specimens, 31 to 58 mm., Bendaja, W. M. Mann.

U.S.N.M. No. 118845, 7 specimens, 31 to 53 mm., Harbel, W. M. Mann.

M.C.Z., 19 specimens, 14 to 47 mm., Du River, Firestone Plantation No. 3, July 1926, G. M. Allen.

EPIPLATYS CHAPERI (Sauvage)

Haplochilus chaperi Sauvage, Bull. Soc. Zool. France, p. 323, pl. 5, fig. 5, 1882.—Boulenger, Fresh-water fishes Africa, vol. 3, p. 56, fig. 41, 1914 (Liberia).

The National Museum collections contain the following specimens:

U.S.N.M. No. 47751, 1 specimen, 22 mm., Monrovia.

U.S.N.M. No. 118847, 1 specimen, 24 mm., Harbel, about 40 miles inland from Monrovia.

Family CICHLIDAE

KEY TO THE CICHLIDS OF LIBERIA (SEE TABLE 4)

1*a*. Teeth simple in one or more rows, the inner row or rows sometimes irregular, or absent.

2*a*. No fleshy pad or swelling at anterior base of upper half of first gill arch; a few canines at tip of upper jaw; single inner row of teeth, sometimes irregular; gill rakers simple.

3*a*. Dorsal rays XIII or XIV, 9 to 11; anal III, 7 or 8; gill rakers 2 or 3+7 or 8; scales 24 to 27, 3½ above lateral line and 9 below it; 4 rows of scales on cheek; the greatest width of naked area on preopercle 6 to 8 in postorbital part of head; the latter is contained 0.8 time in depth of caudal peduncle; least depth of caudal peduncle equals its length from base of anal to midbase of caudal fin rays; about 9 scales in posterior lateral line; the latter about 1.9 in the head; a black opercular spot and two other large black spots on sides; the last at base of caudal fin rays; sometimes lengthwise rows of small spots anteriorly on head and back.

Hemichromis bimaculatus Gill

3*b*. Dorsal rays XIII–XV, 11 or 12; anal rays III, 8 or 9; gill rakers 3 to 5+7 or 8; scales 28 or 29, 4 from origin of spiny dorsal to lateral line, and 9 from origin of anal fin to anterior lateral line; 5 rows of scales on the cheek; the greatest width of naked area on preopercle contained 5 to 6 times in the postorbital part of the head; postorbital part of head equals depth of caudal peduncle, and the latter is contained 1¼ times in its length; about 11 scales in posterior lateral line; the latter contained 1⅓ to 1½ in the head; 5

blackish bars on body; young with a black lateral band connecting the black bars; these black bars more intense along midaxis, almost forming black blotches in adults_____Hemichromis fasciatus Peters

2*b*. A fleshy pad at anterior upper base of first gill arch; no canines at front of jaws; 3 or 4 scale rows on cheeks.

4*a*. About 28 scales in the lower lateral line, its length 1½ times longer than the head; scales about 38, 8 or 9 from origin of dorsal to upper lateral line and 10 from anal origin to upper lateral line; 2 or 3 scales between lateral lines at front of lower lateral line; several rows of teeth behind the outer row; dorsal rays XIV, 17; anal III, 9; gill rakers simple, about 10+14; pectoral fin with 15 rays, very long 2⅓ in standard length; least depth of caudal peduncle 1.3 in its length. Color—Consisting of lengthwise streaks on body; dorsal and anal mottled.

Pelmatochromis jentinkii (Steindachner)

4*b*. About 7 to 10 scales in the lower posterior lateral line; scale rows about 27 to 30; 3 to 3½ scales from origin of dorsal fin to upper lateral line and 8 or 9 scales from origin of anal to upper lateral line; postorbital part of head about 1 to 1⅓ in depth of caudal peduncle.

5*a*. Scale rows 27 or 28; least depth of caudal peduncle about 0.9 time in its length; gill rakers simple on first arch 4 to 6+8; several rows of teeth within the outer row; length of posterior lateral line about ⅘ length of head and with about 8 scales; greatest width of naked area on cheek about 3 times in postorbital length of head; dorsal rays XIV–XV, 11 or 12, anal usually III, 8; color pattern of 7 blackish bars with a large blackish blotch in the 5th under the last spines and first soft rays of dorsal fin; black opercular spot; caudal fin not barred_____Pelmatochromis büttikoferi (Steindachner)

5*b*. Scale rows about 30; least depth of caudal peduncle about 1.2 to 1.3 in its length from base of last anal ray to midbase of caudal fin; length of posterior lateral line ½ to ⅔ length of head and with about 8 scales; no teeth behind outer row or not more than one irregular row; gill rakers branched 5 to 7+9 to 11; dorsal rays XVII to XVIII, 9 to 11; anal III, 7. Color of males.—Dorsal fin with 2 or 3 black and white bars, more or less extending in the same direction as the fin rays; body with about 8 indistinct bars or an indistinct band along midaxis; black opercular spot; outer rays of pelvics blackish and pelvics elongate in specimens over 50 mm. standard length, usually equal to or 1½ times length of head; upper rays of caudal mottled with blackish. Color of females.—Margin of dorsal black otherwise median fins plain; pelvics entirely black, shorter than head; upper half of body brown with a purplish brown bar between anus and base of pelvics and extending obliquely backward toward end of spiny dorsal and first soft rays but fusing with color of upper half of body_____Pelmatochromis humilis Boulenger

5*c*. Scale rows 26 to 28; least depth of caudal peduncle 1.0 in its length; gill rakers 3 to 5+7 or 8; posterior lateral line ½ to ⅔ length of head with 7 or 8 scales; greatest width of naked area on cheek about 3.9 to 4 times in postorbital length of head; dorsal rays XV, 10 or 11 (usually 11); anal III, 7 or 8. Color.—Caudal fin barred with about 10 narrow black bars crossing it; posteriorly dorsal and anal somewhat barred; sides of body with 7 or 8 blackish bars that sometimes join to form a lengthwise blackish band along midaxis,

and in other specimens the bars continue farther ventrally without a black lateral streak_____Pelmatochromis caudifasciatus Boulenger

1*b*. Teeth in outer row all bifid; several inner rows, of multifid teeth; no swelling or pad at base of gill arches.

6*a*. Gill rakers simple, 5 or 6+22 to 24 on first gill arch; dorsal rays XV or XVI, 13; anal III, 12; 2 rows of scales on the cheeks; greatest width of naked area of the preopercle 2¼ to 2⅓ times postorbital part of head; scales 29 or 30, 3 above lateral line (origin of dorsal to upper line) and about 10 below upper lateral line (origin of anal to upper lateral line); postorbital part of head 1½ in least depth of caudal peduncle; the latter 0.8 time in its length; 10 scales in lower lateral line, the latter about 1.3 times in the head; mouth small, not reaching to below eye and barely past nostril; pectoral fins a little longer than head. Color.—Plain light brownish; trace of pale mottlings in soft dorsal fin; pelvics white; median fins dusky; 4 or 5 faint and diffuse bars can be seen on some specimens more distinct in the young_____Tilapia pleuromelas Duméril

6*b*. Fewer than 18 gill rakers on lower limb of first gill arch.

7*a*. Cheeks with 5 or 6 rows of rather small scales, the width of the naked area is contained about 3 times in the postorbital part of the head; 8 brown color bars the first through eye and last two on caudal peduncle; color bars more or less extend on median fins; a wide bar across middle of caudal fin; dorsal rays XIV or XV, 15 to 17; anal III, 11; gill rakers 3+10 to 12; scales 29 or 30, 4 above and 9 below upper lateral line; least depth of caudal peduncle 6.8 in length of caudal peduncle; postorbital part of head 1.0 to 1.2 times in least depth of caudal peduncle; about 12 scales in lower lateral line, its length about 1.2 in the head; the 6th color bar forms a blackish spot at front base of soft dorsal; a blackish opercular spot present.

Tilapia büttikoferi (Hubrecht)

7*b*. Cheeks with 3 or 4 rows of scales.

8*a*. Dorsal rays XV, 10 or 11; anal III, 8; gill rakers 4+8 or 9; scales about 28, 3 above and 8 below the lateral line; 3 rows of scales on the cheek; postorbital part of head 1.1 times in least depth of caudal peduncle; the latter equal to its length; 10 scales in lower lateral line, and its length 1.3 in the head; about 9 obscure color bars and an indistinct blackish lateral band; near front of base of soft dorsal an ocellated black blotch; outer rays of pelvics blackish; caudal and soft dorsal fins mottled pale white and pale blackish; under side of head blackish, or with one or two blackish areas on mandible or on isthmus; rays of anal blackish distally; a black opercular spot.

Tilapia zillii (Gervais)

8*b*. Dorsal rays XV or XVI, 13 or 14; anal III, 9 to 11.

9*a*. Dorsal rays XV or XVI, 14; anal 9 to 11; gill rakers, 5 or 6+9 to 11; scales 27 to 29, 3 to 3½ above and 9 or 10 below lateral line; 4 rows of scales on cheeks, width of naked area 2½ times in postorbital part of head; depth of body 2⅒ in standard length; postorbital part of head 1.6 in least depth of caudal peduncle, the latter 0.7 in length of caudal peduncle; 12 scales in lower lateral line. Color.—Center of each scale brownish; dorsal fin with bars and a blackish blotch at front of base of soft dorsal; a blackish opercular spot; young with 9 color bars, those under spinous dorsal fin sometimes double_____Tilapia melanopleura Duméril

9*b*. Dorsal rays XVI, 13; anal III, 9; gill rakers 4+13 or 14; scales 29 to 31; 3½ above and 8 below lateral line; 3 or 4 rows of scales across the cheek; width of naked area 3 times in postorbital part of head; postorbital part of head 1.2 in least depth of caudal peduncle; the latter equal to length of caudal peduncle; 10 scales in lower lateral line; the latter contained 1.5 times in the head; depth of body 2½ in standard length. Color.—Consisting of 9 bars and a blackish lateral band; dorsal mottled with pale, and a blackish blotch near front base of soft dorsal; a blackish opercular blotch----------Tilapia savagei Fowler

Genus HEMICHROMIS Peters

Hemichromis Peters, Monatsb. Akad. Wiss. Berlin, 1857, p. 403. (Type: *H. fasciatus.*)

HEMICHROMIS BIMACULATUS Gill

Hemichromis biamaculatus Gill, Proc. Acad. Nat. Sci. Philadelphia, 1862, p. 137.—Steindachner, Notes Leyden Mus. vol. 16, p. 49, 1894 (Junk, Sulymak, and Duqueah Rivers; Fischermann See).—Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 246, 1919 (St. Pauls River and Mount Coffee, Liberia).—Nichols and LaMonte, Amer. Mus. Nov. No. 626, p. 2, 1933 (Kaleata, Liberia).

The following specimens have been examined:

U.S.N.M. No. 48489, 1 specimen, Mount Coffee, Monrovia, O. F. Cook and G. N. Collins.

U.S.N.M. No. 48506, 4 specimens, from a creek, St. Pauls River, Mount Coffee, Rolla P. Currie.

U.S.N.M. No. 48507, 2 specimens, from a creek, St. Pauls River, Mount Coffee, Rolla P. Currie.

U.S.N.M. No. 40508, 3 specimens, from a creek, St. Pauls River, Mount Coffee, Rolla P. Currie.

U.S.N.M. No. 118832, 36 specimens, 39 to 87 mm., Bromley. Wm. M. Mann.

U.S.N.M. No. 118833, 7 specimens, 30 to 84 mm., Bendaja, Wm. M. Mann.

U.S.N.M. No. 118834, 25 specimens, 25 to 93 mm., Harbel, Wm. M. Mann.

U.S.N.M. No. 118835, 64 specimens, 19 to 91 mm., Gibi Mountain, Wm. M. Mann.

M.C.Z., 11 specimens, 20 to 65 mm., Du River, G. M. Allen.

HEMICHROMIS FASCIATUS Peters

Hemichromis fasciatus Peters, Monatsb. Akad. Wiss. Berlin, 1857, p. 403.—Hubrecht, Notes Leyden Mus., vol. 3, p. 68, 1881 (St. Pauls River).—Steindachner, Notes Leyden Mus., vol. 16, p. 47, 1894 (Junk and St. Pauls Rivers).—Boulenger, Cat. fresh-water fishes Africa. vol. 3, p. 428, fig. 293, 1915 (Nanna Kru, Liberia).—Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 246, 1919 (St. Pauls River).—Nichols and LaMonte, Amer. Mus. Nov. No. 626, p. 2, 1933 (Kaleata, Liberia).

The following specimens have been examined:

U.S.N.M. No. 48509, 1 specimen, St. Pauls River, Rolla P. Currie.

U.S.N.M. No. 118826, 1 specimen, 48 mm., Gibi Mountain, Wm. M. Mann.

U.S.N.M. No. 118828, 4 specimens, 51 to 110 mm., Bellyella, Wm. M. Mann.

U.S.N.M. No. 118829, 107 specimens, 16 to 127 mm., Bendaja, Wm. M. Mann.

TABLE 4.—*Counts made on certain species of Cichlidae from Liberia*

Species	Dorsal rays																Anal rays							Number of gill rakers																															
	Spines						Soft rays																	Above									Below																					
	XIII	XIV	XV	XVI	XVII	XVIII	9	10	11	12	13	14	15	16	17	III	7	8	9	10	11	12	2	3	4	5	6	7	8	9	10	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Hemichromis:																																																						
fasciatus	1	2	1						1	5						2		1	1					1	1	1						1	1																				
bimaculatus	1	3					3	2	3							5	1	4					2	1								2	1																				
Pelmatochromis:																																																				
jentinkii		2													2	2			2												2																					
büttikoferi		3	1						2	2						4		4						1								2																				
humilis					4	2	1	3	2							5	5								2		2						2	1	1																	
Tilapia:																																																			
pleuromelas			1	1							2					2					1	1				1																									
büttikoferi		1	2										1	1	1	3					3			3											1															
melanopleura			4	1								5				4			2	2					7	1							2	3	3															
savagei				4							4					4			4					2												1	1													
zillii			4					1	3							4		4						4								1	2	1																	

U.S.N.M. No. 118830, 25 specimens, 18 to 150 mm., Bromley, Wm. M. Mann.
U.S.N.M. No. 118831, 241 specimens, 11 to 168 mm., Harbel, Wm. M. Mann.
M.C.Z., 1 specimen, 69 mm., Gbanga, G. M. Allen.
M.C.Z., 38 specimens, 8 to 48 mm., Du River, G. M. Allen.

Genus PELMATOCHROMIS Steindachner

Pelmatochromis Steindachner, Notes Leyden Mus., vol. 16, p. 40, 1894. (Type: *Paratilapia büttikoferi* Steindachner.)

PELMATOCHROMIS JENTINKII (Steindachner)

Paratilapia (*Pelmatochromis*) *jentinkii* Steindachner, Notes Leyden Mus., vol. 16, p. 43, pl. 2, fig. 1, 1894 (Fischermann See, Buluma).—Boulenger, Cat. fresh-water fishes Africa, vol. 3, p. 383, fig. 259, 1915 (Liberia).—Pellegrin, Poiss. eaux douces Afr. Occid., p. 269, 1933 (Liberia).

The number of scales between the lateral lines is variable, either 2 or 3, and I fail to locate the differences mentioned by Boulenger between *P. jentinkii* and *P. intermedius*, so I refer the latter to the synonymy of *jentinkii*.

The National Museum collections contain 2 specimens, U.S.N.M. No. 118827, 119 and 159 mm., collected by Dr. Mann at Bendaja.

PELMATOCHROMIS BÜTTIKOFERI (Steindachner)

Paratilapia (*Pelmatochromis*) *büttikoferi* Steindachner, Notes Leyden Mus., vol. 16, p. 40, 1894 (Duqueah R. at Hill Town; Junk R.; Fischermann See).—Boulenger, Cat. fresh-water fishes Africa, vol. 3, p. 390, fig. 263, 1915 (Nanna Kru, Liberia).—Pellegrin, Poiss. eaux douces Afr. Occid. p. 271, 1923 (Liberia).

The following specimens have been examined:

U.S.N.M. No. 118819, 14 specimens, 39 to 114 mm., Harbel, Wm. M. Mann.
U.S.N.M. No. 118820, 6 specimens, 17 to 105 mm., Bromley, Wm. M. Mann.
U.S.N.M. No. 118821, 10 specimens, 74 to 118 mm., Bendaja, Wm. M. Mann.
M.C.Z., 4 specimens, 39 to 62 mm., Du River, G. M. Allen.

PELMATOCHROMIS HUMILIS Boulenger

Pelmatochromis humilis Boulenger, Cat. fresh-water fishes Africa, vol. 4, p. 333, fig. 194, 1916 (type locality, N. Sherbo district, Sierra Leone).—Nichols and LaMonte, American Mus. Nov., No. 626, p. 2, 1933 (Kaleata, Liberia).

The National Museum collections contain the following specimens, all collected by Dr. Mann:

U.S.N.M. No. 118822, 17 specimens, 46 to 84 mm., Bendaja.
U.S.N.M. No. 118823, 29 specimens, 35 to 78 mm., Bromley.
U.S.N.M. No. 118824, 33 specimens, 34 to 93 mm., Harbel.
U.S.N.M. No. 118825, 16 specimens, 32 to 86 mm., Gibi Mountain.

PELMATOCHROMIS CAUDIFASCIATUS Boulenger

Pelmatochromis caudifasciatus BOULENGER, Ann. Mag. Nat. Hist., ser. 8, vol. 12, p. 69, 1913.

The Museum of Comparative Zoology contains 4 specimens, 34-55 mm., collected at Gbanga, Sept. 26, 1926, by G. M. Allen.

Genus TILAPIA Smith

Tilapia SMITH, Zool. South Africa, pl. 5, 1849 (type, *T. sparrmanni* SMITH).

TILAPIA PLEUROMELAS Duméril

Tilapia pleuromelas DUMÉRIL, Arch. Mus., vol. 10, p. 253, 1859. (*Sparus galilaeus* Artedi *in* Hasselquist is not valid as it is previous to 1758.)

Tilapia galilaea FOWLER, Proc. U. S. Nat. Mus., vol. 56, p. 243, 1919 (St. Pauls River).

The United States National Museum collections contain the following specimens:

U.S.N.M. No. 48505, 3 specimens, 55 to 66 mm., St. Pauls River, Mt. Coffee, Rolla P. Currie.

U.S.N.M. No. 118818, 3 specimens, 100 to 147 mm., Harbel, Wm. M. Mann.

TILAPIA BÜTTIKOFERI (Hubrecht)

Chromis büttikoferi HUBRECHT, Notes Leyden Mus., vol. 3, p. 66, 1881 (St. Pauls River).—STEINDACHNER, Notes Leyden Mus., vol. 16, p. 39, 1894 (St. Pauls River).

Tilapia büttikoferi BOULENGER, Cat. fresh-water fishes Africa, vol. 3, p. 214, fig. 138, 1915 (Liberia).—FOWLER, Proc. U. S. Nat. Mus., vol. 56, p. 245, 1919 (Liberia).—PELLEGRIN, Poiss. eaux douces Africa Occid., p. 292, 1923 (Liberia).

The following specimens are in the National Museum collections:

U.S.N.M. No. 48491, 1 specimen, Monrovia, Mt. Coffee, O. F. Cook and G. N. Collins.

U.S.N.M. No. 48501, 1 specimen 195 mm., Mount Coffee, St. Pauls River, Rolla P. Currie.

U.S.N.M. No. 48502, 1 specimen, 89 mm., Mt. Coffee, St. Pauls River, Rolla P. Currie.

TILAPIA ZILLII (Gervais)

Acerina zillii GERVAIS, Ann. Sc. Nat., vol. 10, p. 203, 1848.

Dr. Mann collected 5 specimens, 24–76 mm., U.S.N.M. No. 118814, at Bellyella.

TILAPIA MELANOPLEURA Duméril

Tilapia melanopleura DUMÉRIL, Arch. Mus., vol. 10, p. 252, pl. 22, fig. 1, 1859.—BOULENGER, Cat. fresh-water fishes Africa, vol. 3, p. 192, 1915 (Nanna Kru Liberia).

Chromis niloticus STEINDACHNER, Notes Leyden Mus., vol. 16, p. 38, 1894 (Junk River).

The United States National Museum collections contain the following specimens:

U.S.N.M. No. 48510, 1 specimen, 173 mm., St. Pauls River, Rolla P. Currie.
U.S.N.M. No. 118815, 27 specimens, 21 to 60 mm., Bromley, Wm. M. Mann.
U.S.N.M. No. 118816, 4 specimens, 15 to 44 mm., Bendaja, Wm. M. Mann.
U.S.N.M. No. 118817, 5 specimens, 25 to 86 mm., Harbel, Wm. H. Mann.

TILAPIA SAVAGEI Fowler

Tilapia savagei Fowler, Proc. U. S. Nat. Mus. vol. 56, p. 243, fig. 10, 1919 (St. Pauls River) (type, U.S.N.M. No. 48504; 4 paratypes, U.S.N.M. No. 48503).—Pellegrin, Poiss. eaux douces Afr. Occid., p. 289, 1923 (St. Pauls River, Liberia).

Chromis mossambicus Hubrecht, Notes Leyden Mus., vol. 3, p. 66, 1881 (St. Pauls River).—Steindachner, Notes Leyden Mus., vol. 16, p. 39, 1894 (St. Pauls River).

The dorsal spines are XVI on all 5 types and not XV as indicated by Fowler.

The following specimens, collected by Rolla P. Currie, from St. Pauls River, are in the National Museum collections:

U.S.N.M. No. 48504 (holotype), 95 mm. standard length, 128 mm. total length.
U.S.N.M. No. 48504 (paratypes), 4 specimens, 68 to 90 mm. standard length, 90 to 116 mm. total length.

Family OPHICEPHALIDAE

Genus OPHICEPHALUS Bloch

Ophicephalus Bloch, Naturg. Ausländ. Fische, vol. 8, p. 137, 1794.

OPHICEPHALUS OBSCURUS Günther

Ophicephalus obscurus Günther, Cat. fishes British Mus., vol. 3, p. 476, 1861.—Büttikofer, Reisebilder aus Liberia, vol. 2, p. 448, 1890 (Liberia).—Steindachner, Notes Leyden Mus. vol. 16, p. 36, 1894 (Fischermann See; Sulymak River and Buluma).

Family ANABATIDAE

Genus ANABAS Cuvier

Anabus Cuvier, Règne animal, ed. 1, vol. 2, p. 339, 1817. (Type: *Perca scandens* Daldorf.)

ANABAS KINGSLEYAE (Günther)

Ctenopora kingsleyae Günther, Ann. Mag. Nat. Hist., ser. 6, vol. 17, p. 270, pl. 13, fig. a, 1896.—Hubrecht, Notes Leyden Mus., vol. 3, p. 68, 1881 (St. Pauls River).—Steindachner, Notes Leyden Mus., vol. 16, p. 37, 1894 (St. Pauls and Sulymak Rivers; "Waldbache bei Buluma and Fishermann See").

Anabas kingsleyae Boulenger, Cat. fresh-water fishes Africa, vol. 4, p. 63, 1916 (Nanna Kru, Liberia).—Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 241, 1919 (St. Pauls River).

The following specimens have been examined:

U.S.N.M. No. 48511, 1 specimen, 65 mm., St. Pauls River, R. P. Currie.
U.S.N.M. No. 118836, 7 specimens, 43 to 78 mm., Bellyella, Wm. M. Mann.
U.S.N.M. No. 118837, 10 specimens, 44 to 95 mm., Bendaja, Wm. M. Mann.
U.S.N.M. No. 118838, 16 specimens, 47 to 135 mm., Harbel, Wm. M. Mann.
U.S.N.M. No. 118839, 5 specimens, 70 to 143 mm., Bromley, Wm. M. Mann.
U.S.N.M. No. 118840, 2 specimens, 58 and 80 mm., Gibi Mountain, 900 feet elevation, Wm. M. Mann.
M.C.Z., 1 specimen, 74 mm., Gbanga, Sept. 26, 1926, G. M. Allen.

Length of head 3 to 3¼ and greatest depth 2⅓ to 2⅔ in standard length; scales in 25 rows, 2½ above upper lateral line to dorsal and 5½ between lower lateral line and anal fin; anal rays IX, 9 to 11, usually 10; dorsal rays XVI or XVII, 9 to 10, usually 10.

Order GOBIOIDEA

KEY TO THE FAMILIES OF GOBIOIDEA FROM LIBERIA

1*a*. Last or inner rays of pelvic fins connected by a membrane for more than half the way out toward their tips; usually a basal membrane is present. Gobiidae

1*b*. Last or inner rays of pelvic separated to their base and not connected by a membrane at their base; no basal membrane Eleotridae

Family GOBIIDAE

KEY TO THE GENERA AND SPECIES OF GOBIIDS FROM LIBERIA

1*a*. Dorsal rays XI to XIII–I, 11 or 12; anal I, 9 or 10; pectoral about 13; eyes prominent on top of head, much above the profile; scales small. Periophthalmus papilio Bloch

1*b*. Dorsal rays VI–I, 9 to 11.

2*a*. Scales 39 to 45; first few upper rays of pectoral fin filamentous; anal I, 8. Bathygobius soporator (Cuvier and Valenciennes)

2b. Scales 60 to 70; first few upper rays not filamentous; anal I, 10. Gobius guineensis Peters

Genus PERIOPHTHALMUS Bloch

Periophthalmus Bloch, *in* Schneider, Syst. Ichthy. p. 63, tab. 14. 1801. (Type: *P. papilio* Bloch, *in* Schneider.)

PERIOPHTHALMUS PAPILIO Bloch

Periophthalmus papilio Bloch, in Schneider, Syst. Ichthy. p. 63, 1801.
Gobius koelreuteri Pallas, Spicilegia, fasc. 8, p. 8, pl. 2, figs. 1–3, 1770.
Periophthalmus koelreuteri Büttikofer, Reisebilder aus Liberia, vol. 2, p. 449, 1890 (Liberia).
Periophthalmus koelreuteri Pallas var. *papilio* Bloch, Steindachner, Notes Leyden Mus. vol. 16, p. 27, 1894 (Robertsport and Grand Cape Mountain, Liberia).
Periophthalmus barbarus (Linnaeus) Fowler, Proc. U. S. Nat. Mus., vol. 56, p. 248, 1919 (Monrovia).

U.S.N.M. No. 4319 contains 1 specimen collected by J. C. Breevort in Liberia, no specific locality.

Genus BATHYGOBIUS Bleeker

Bathygobius BLEEKER, Arch. Neerl. Sci., vol. 13, p. 54, 1878. (Type: *Gobius petrophilus* Bleeker.)

BATHYGOBIUS SOPORATOR (Cuvier and Valenciennes)

Gobius soporator CUVIER and VALENCIENNES, Hist. Nat. Poiss., vol. 22, p. 56, 1837.
Mapo soporator (Valenciennes), FOWLER, Proc. U. S. Nat. Mus., vol. 56, p. 248, 1919 (Mount Coffee, Monrovia).

O. F. Cook and G. N. Collins collected 1 specimen, U.S.N.M. No. 48491, at Mt. Coffee, Monrovia.

Genus GOBIUS Linnaeus

Gobius LINNAEUS, Systema naturae, ed. 10, p. 262, 1758. (Type: *Gobius niger* Linnaeus.)

GOBIUS GUINEENSIS Peters

Gobius aeneofuscus var. *guineensis* PETERS, Monatsb. Akad. Wiss. Berlin, 1876, p. 248.
Gobius (*Chonophorus*) *tajasica* LICHENSTEIN, *in* Steindachner, Notes Leyden Mus., vol. 16, p. 25, 1894 (DuQueah River, at Hill Town; Fischermann See, Liberia).

The following collections have been examined:

U.S.N.M. No. 118794, 2 specimens, 57 to 82 mm., Bendaja, Wm. M. Mann.
U.S.N.M. No. 118795, 2 specimens, 110 to 117 mm., Bellyella, Wm. M. Mann.
U.S.N.M. No. 118796, 10 specimens, 39 to 145 mm., Harbel, Wm. M. Mann.
M.C.Z., 1 specimen, 142 mm., Pea'htah, St. Pauls River, D. H. and G. M. Linden.

Family ELEOTRIDAE

KEY TO THE ELEOTRIDS FROM LIBERIA

1*a*. Scales about 50; anal usually I, 8. Dorsal VI–I, 8; no black bar across base of caudal fin; the latter barred however; streaks radiate from under eye. Eleotris vittata Duméril

1*b*. Scales 32 to 34; anal I, 6 or I, 7; dorsal VI–I, 8. A black bar across base of caudal fin ..... Eleotris kribensis Boulenger

Genus ELEOTRIS Bloch

Eleotris BLOCH, *in* Schneider, Systema Ichthy., p. 65, 1801. (Type: *Gobius pisonis* Gmelin.)

ELEOTRIS VITTATA Duméril

Eleotris vittata DUMÉRIL, Arch. Mus., vol. 10, p. 249, pl. 21, fig. 4, 1860.—STEINDACHNER, Notes Leyden Mus., vol. 16, p. 27, 1894 (DuQueah River, Liberia).—BOULENGER, Cat. fresh-water fishes Africa, vol. 4, p. 18, fig. 12, 1916 (Grand Cape Mt., River, Liberia, and Nanna Kru, Liberia).
"*Eleotris* (*Culius*) *pisonis* sp. L. Gmel. (*Eleotris gyrinus* C. V., Gthr.)" STEINDACHNER, Notes Leyden Mus., vol. 16, p. 27, 1894 (DuQueah River at Hill Town, Liberia.)

The following specimens are in the United States National Museum collections:

U.S.N.M. No. 44828, 1 specimen, 139 mm., Liberia, without specific locality, O. F. Cook.

U.S.N.M. No. 118791, 30 specimens, 23 to 83 mm., Bendaja, Wm. M. Mann.

U.S.N.M. No. 118792, 83 specimens, 17 to 83 mm., Bromley, Wm. M. Mann.

U.S.N.M. No 118793, 95 specimens, 39 to 96 mm, Harbel, Wm. M. Mann.

ELEOTRIS KRIBENSIS Boulenger

Eleotris kribensis BOULENGER, Ann. Mag. Nat. Hist., ser. 7, vol. 22, p. 52, 1907.

Dr. Mann collected the following specimens:

U.S.N.M. No. 118789, 3 specimens, 21 to 32 mm, Gibi Mountain.

U.S.N.M. No. 118790, 1 specimen, 19 mm., Harbel.

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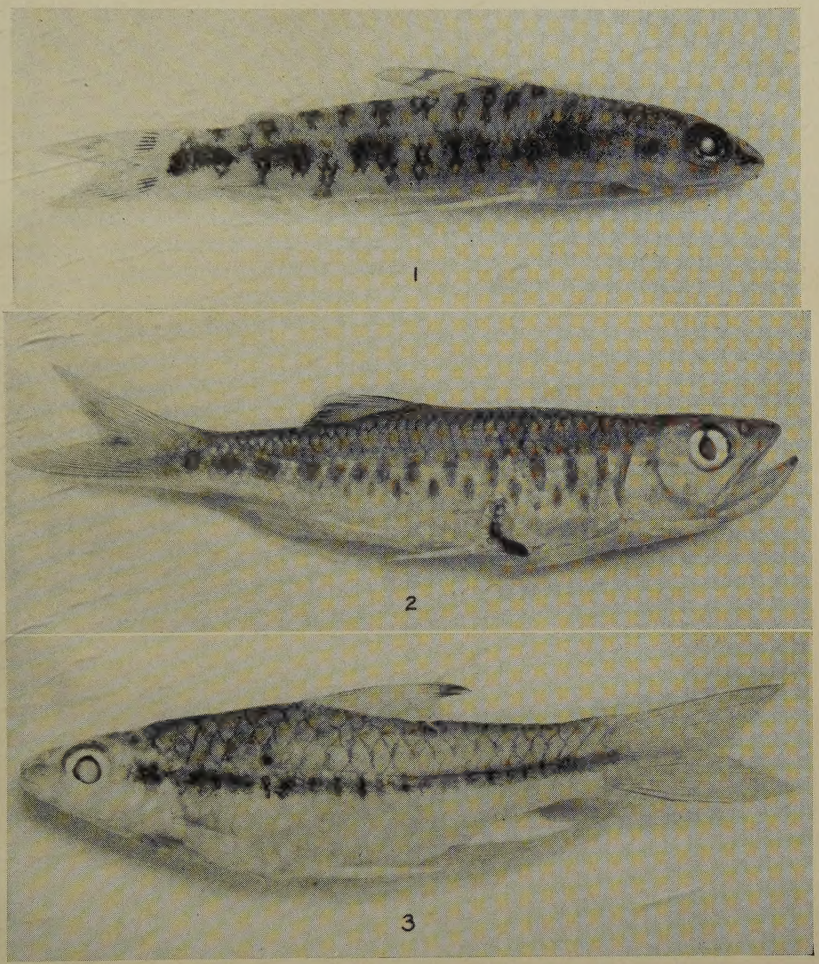
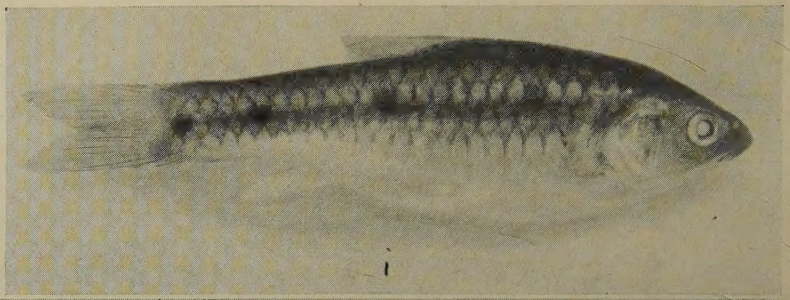
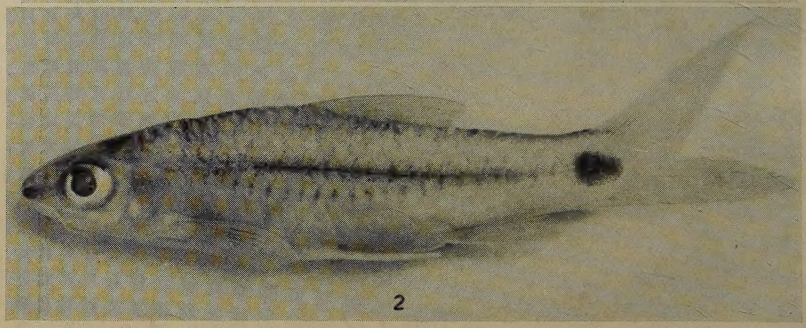
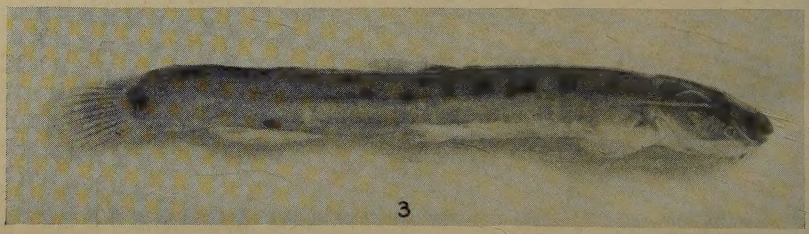
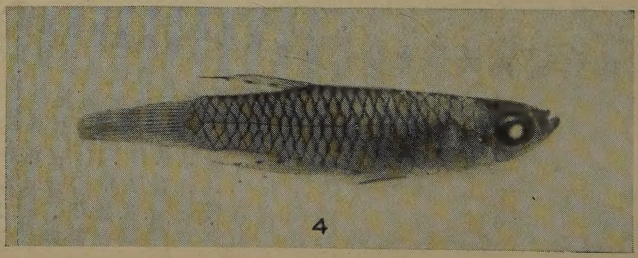


1, *Nannocharax seyboldi*, new species, holotype (U. S. N. M. No. 118757).
2, *Barilius silex*, new species, holotype (U. S. N. M. No. 118736).
3, *Mannichthys lucileae*, new genus and species, holotype (U. S. N. M. No. 118746).









1, *Barbus flomoi*, new species, holotype (U. S. N. M. No. 118737).
2, *Barbus boboi*, new species, holotype (U. S. N. M. No. 118740).
3, *Paramphilius firestonei*, new species, holotype (U. S. N. M. No. 118811).
4, *Micropanchax macrurus manni*, new subspecies, holotype (U. S. N. M. No. 118851).